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COUNTY OF DUMF

FORTIETH

ANNUAL REPO

UPON THE

Health and Sanitary Condition
the County.

1930.

BY

JOHN RITCHIE, M.B., Ch.B., M.R.C.P.E

County Medical Officer.

DUMFRIES:
ROBERT DINWIDDIE, PRINTER AND LITHOGR

STAFF, 1930.

County Medical Officer and Chief Public Assistance Officer.

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Veterinary Inspectors.

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ROBERT BELL.
M. E. B. FARISH (Typist).

(6) LOCAL GOVERNMENT OFFICERS.

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CHAS. W. FRASER, Cert. of Roy. San. Assoc. Scot.	(2) Dumfries 2nd District.
JOHN JACKSON, Cert. of Roy. San. Instit.	(3) Thornhill District.
PETER M. ANDERSON, P.L.D. ...	(4) Sanquhar District.
ALEX. GRANT, Cert. of Roy. San. Assoc. Scot.	(5) Annan District.
HARRY W. BRYSON	(6) Gretna District.
WM. CRUICKSHANK, Cert. of Roy. San. Assoc. Scot	(7) Lockerbie District
JOHN SANSON, Cert. of Roy. San. Assoc.	(8) Moffat District.
A. A. OLIVER, Cert. of Roy. San. Assoc.	(9) Langholm District.

To

The Department of Health for Scotland.
The County Council of Dumfriesshire.

Ladies and Gentlemen,

I have the honour of submitting my Report for 1930, being the Fortieth Annual Report on the Health and Sanitary Conditions of the County of Dumfriesshire.

The form of the Report differs slightly from that used in previous years. After a section on Vital Statistics, the remainder is arranged as directed by the Department of Health for Scotland in their circular, dated 12th February, 1931, with, in addition, reports on the work of the County Laboratories and on the "minor" services still administered by the Small Burghs.

There have been considerable changes during the year in the organisation and the work of the Department, but the difficulties arising therefrom have been materially lightened by the efficient and loyal service rendered by all members of the Staff.

I am, Ladies and Gentlemen,

Your obedient Servant,

JOHN RITCHIE,
Medical Officer of Health

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REPORT.

VITAL STATISTICS.

Population.

The Registrar-General's estimates of the population in the County Landward and in the Small Burghs during 1930 is as follows :—

(a) County Landward			43,597
(b) Burghs—	Annan	3777	
	Sanquhar	1719	
	Lochmaben	924	
	Lockerbie	2274	
	Moffat	2346	
	Langholm	2371	
			13,411
Total			57,008

Those figures show, in the case of the County Landward, an increase of 98, and in the case of the Burghs a decrease of 42, on the corresponding estimates for 1929.

Births.

The number of births occurring in the County Landward and the Small Burghs during 1930, with the corresponding rates, are shown in tabular form :—

	Births, corrected for transfers	M.	F.	Birth-rate	Per cent. of illegitimate births
County Landward	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

The birth-rate for the County Landward is practically the same as it was in 1929 (18·9).

The rate for the County Landward and the Small Burghs combined (18·4) is 0·9 below that of all Scotland for 1930.

Deaths.

The following table shows the number of deaths occurring in the County Landward and Small Burghs during 1930 :—

	Deaths registered.		Corrected for transfers.		M	F	Death rate per 1000 and corrected for age and sex.
County Landward ...		570		563	271	292	11·5 per 1000
Burghs—Annan ...	40	177	50	204	18	32	11·9 .. ..
Sanquhar	15		16		9	7	9·0 .. ..
Lochmaben	17		22		9	13	17·9 .. ..
Lockerbie	33		38		15	23	15·2 .. ..
Moffat ...	24		28		11	17	9·7 .. ..
Langholm	48		50		26	24	17·5 .. ..
Totals		747		767	359	408	11·8 per 1000

The total number of deaths in the County Landward and Small Burghs—767—is a reduction of 153 on that in the previous year. The reduction is almost entirely in the County districts.

The numbers, causes, rates and age distribution of deaths in the County Landward and Small Burghs are shown in the following tables :

Deaths.

(a) COUNTY LANDWARD.

CAUSE OF DEATH.	At all ages	Age Periods.											
		-1	1-	5-	10-	15-	25-	35-	45-	55-	65-	75-	85-
Enteric Fever	3	...	...	...	...	2	...	...	1	...	...	...	...
Typhus Fever	...	...	...	...	...	...	...	...	...	...	...	...	...
Smallpox	...	...	...	...	...	...	...	...	...	...	...	...	...
Measles	2	...	...	1	...	1	...	...	...	...	...	...	...
Scarlet Fever	...	...	...	...	...	...	...	...	...	...	...	...	...
Whooping-cough	1	1	...	...	...	...	...	...	...	...	...	...	...
Diphtheria	4	...	2	1	...	...	...	...	...	...	1	...	...
Influenza	5	...	...	1	...	...	2	...	...	...	1	1	...
Encephalitis Lethargica	2	...	...	...	...	...	...	1	1	...	...	...	...
Cerebro-spinal Meningitis	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Epidemic Diseases	5	...	1	...	...	1	1	...	...	1	1	...	...
Pulmonary Phthisis	22	1	...	...	...	5	3	4	5	1	3	...	...
Tuberculous Meningitis	...	...	...	...	...	...	...	...	...	...	...	...	...
Abdominal Tuberculosis	1	...	...	...	...	...	...	...	...	...	1	...	...
Other Tuberculous Diseases	2	...	1	...	...	1	...	...	...	...	...	...	...
Malignant Tumours	67	...	...	...	...	...	2	4	10	18	26	7	...
Rheumatic Fever	2	...	...	...	...	2	...	...	...	...	...	...	...
Meningitis (not C.S. or Tub.)	3	...	2	...	...	...	...	...	...	1	...	...	...
Apoplexy	63	...	...	...	...	...	...	1	2	8	31	16	5
Heart Disease	111	...	...	...	1	1	2	3	3	19	45	31	6
Diseases of Arteries	6	...	...	...	...	...	...	...	...	...	1	4	1
Bronchitis	23	1	...	...	...	...	...	...	3	2	8	5	[illegible]
Pneumonia (all forms)	39	7	5	...	...	...	1	4	2	6	[illegible]	[illegible]	[illegible]
Other Respiratory Diseases	8	...	1	...	...	...	...	...	...	1	3	3	...
Enteritis (under 2 years)	3	3	...	...	...	...	...	...	...	...	...	...	...
Appendicitis	8	...	...	...	...	3	1	...	2	2	...	...	...
Liver Diseases (not Malig.)	3	...	...	...	...	...	...	...	2	...	...	1	...
Nephritis (Bright's Disease)	13	...	...	...	2	...	...	...	3	3	4	1	...
Puerperal Sepsis	4	...	...	...	...	1	2	1	...	...	...	...	...
Other Diseases and Accidents of Pregnancy, etc.	3	...	...	...	...	...	3	...	...	...	...	...	...
Diseases of Early Infancy and Malformations	18	18	...	...	...	...	...	...	...	...	...	...	...
Suicide	2	...	...	...	...	...	...	...	1	...	1	...	...
Violence (excluding Suicide)	28	1	2	2	...	3	5	3	4	1	3	4	...
Other Defined Diseases	104	6	4	1	1	3	4	6	9	23	16	20	11
Ill Defined	8	...	...	...	...	...	...	1	...	2	2	3	...

Deaths.

(b) SMALL BURGHS.

CAUSE OF DEATH.	At all ages	Age Periods. –1	1	5	10–	15–	25–	35–	45–	55–	65–	75–	85
nic Fever	...	...	...	...	...	...	...	...	...	...	...	...	...
hus Fever	...	...	...	...	...	...	...	...	...	...	...	...	...
llpox	...	...	...	...	...	...	...	...	...	...	...	...	...
sles	...	...	...	...	...	...	...	...	...	...	...	...	...
let Fever	1	...	1	...	...	...	...	...	...	...	...	...	...
oping-cough	3	3	...	...	...	...	...	...	...	...	...	...	...
htheria	1	...	1	...	...	...	...	...	...	...	...	...	...
enza	2	...	...	...	...	...	...	...	...	...	...	2	...
phalitis Lethargica	...	...	...	...	...	...	...	...	...	...	...	...	...
bro-spinal Meningitis	...	...	...	...	...	...	...	...	...	...	...	...	...
er Epidemic Diseases	1	...	...	...	...	...	...	...	...	...	1	...	...
nonary Phthisis	9	...	...	...	1	1	1	1	1	3	...	1	...
erculous Meningitis	2	...	...	...	1	1	...	...	...	...	...	...	...
ominal Tuberculosis	2	...	...	...	...	...	1	...	...	1	...	...	...
er Tuberculous Diseases	2	...	...	...	...	1	...	1	...	...	...	...	...
ignant Tumours	28	...	...	...	...	...	1	3	3	8	5	8	...
umatic Fever	...	...	...	...	...	...	...	...	...	...	...	...	...
ingitis (not C.S. or Tub.)	2	1	...	...	...	...	...	1	...	...	...	...	...
plexy	23	...	...	...	...	...	...	1	1	6	5	7	3
rt Disease	39	...	...	...	...	1	...	...	1	3	15	18	1
ases of Arteries	6	...	...	...	...	...	...	...	1	...	3	2	...
chitis	10	1	...	...	...	...	1	...	...	2	4	1	1
umonia (all forms)	12	2	...	...	...	...	1	...	1	3	4	...	1
er Respiratory Diseases	2	...	...	...	...	...	...	...	...	1	...	1	...
ritis (under 2 years)	...	...	...	...	...	...	...	...	...	...	...	...	...
ndicitis	...	...	...	...	...	...	...	...	...	...	...	...	...
Diseases (not Malig.)	3	...	...	...	...	...	...	...	...	2	1	...	...
ritis (Bright's Disease)	14	...	...	...	...	...	...	...	1	3	5	4	1
eral Sepsis	1	...	...	...	...	1	...	...	...	...	...	...	...
Diseases and Accidents f Pregnancy, etc.	...	...	...	...	...	...	...	...	...	...	...	...	...
es of Early Infancy and Malformations	5	5	...	...	...	...	...	...	...	...	...	...	...
e	1	...	...	...	...	...	...	...	1	...	...	...	...
nce (excluding Suicide)	5	1	...	1	1	1	...	...	...	...	1	...	...
Defined Diseases	27	...	...	...	2	2	...	2	...	4	5	11	1
fined	3	...	...	...	...	...	...	...	...	1	1	1	...
otal	204	13	2	1	5	8	5	9	10	37	50	56	8

Death Rates.

COUNTY AND SMALL BURGHS.

CAUSE OF DEATH.	County.		Small Burghs.	
	Deaths.	Death Rate per 1000.	Deaths.	Death Rate per 1000.
Enteric Fever	3	0·06	...	...
Typhus Fever	...	...	...	.
Smallpox	...	...	..	...
Measles	2	0·04	..	...
Scarlet Fever	...	...	1	0·06
Whooping-cough	1	0·02	3	0·19
Diphtheria	4	0·08	1	0·06
Influenza	5	0·10	2	0·12
Encephalitis Lethargica	2	0·04	...	...
Cerebro-spinal Meningitis	...	...	...	...
Other Epidemic Diseases	5	0·10	1	0·06
Pulmonary Phthisis	22	0·44	9	0·57
Tuberculous Meningitis	...	...	2	0·12
Abdominal Tuberculosis	1	0·02	2	0·12
Other Tuberculous Diseases	2	0·04	2	0·12
Malignant Tumours	67	1·35	28	1·76
Rheumatic Fever	2	0·04	...	...
Meningitis (not C.S. or Tub.)	3	0·06	2	0·12
Apoplexy	63	1·26	23	1·38
Heart Disease	111	2·24	39	2·34
Diseases of Arteries	6	0·12	6	0·38
Bronchitis	23	0·46	10	0·64
Pneumonia (all forms)	39	0·78	12	0·76
Other Respiratory Diseases	8	0·16	2	0·12
Enteritis (under 2 years)	3	0·06	..	..
Appendicitis	8	0·16	...	..
Liver Disease (not Malig.)	3	0·06	3	0·19
Nephritis (Bright's Disease)	13	0·26	14	0·88
Puerperal Sepsis	4	0·08	1	0·06
Other Diseases and Accidents of Pregnancy, etc.	3	0·06	...	...
Diseases of Early Infancy and Malformations	18	0·36	5	0·32
Suicide	2	0·04	1	0·06
Violence (excluding Suicide)	28	0·56	5	0·32
Other Defined Diseases	104	2·05	27	1·71
Ill Defined	8	0·16	3	0·19

Those are even lower than the figures for last year, which, as I noted at the time, were the lowest Tuberculosis mortalities ever recorded in the County. Fluctuations from year to year are certain to occur, but when the mortality from Tuberculosis is calculated over a sufficiently long period the very evident fall is manifest.

The following table emphasises this :—

Death-rate from all forms of Tuberculosis.

County Landward and Small Burghs.

Average for 1891-1910—2·339 per 1000 living.
" " 1911-1920—1·381 " "
" " 1921-1930—0·994 " "
Rate for 1930—0·699 " "

Infantile Mortality.—There were 51 deaths of infants under one year of age during 1930 in the combined Landward and Small Burghal areas. This is equal to an infantile mortality rate of 49 per 1000 births (46 Landward, 56 Burghal), which is much below the average.

The causes of death of those 51 infants were :—

Premature Birth	11
Injury at Birth	2
Congenital Malformations	3
Marasmus	6
Convulsions	3
Pneumonia (all forms)	10
Whooping-cough	4
Enteritis	2
Syphilis	1
Osteomyelitis	1
Bronchitis	1
Meningitis	1
Rickets	1
Congenital Heart Disease	2
Violence	2
Other Causes	1
	51

Twenty-six of those infants died during the first four weeks after birth, giving a "neonatal" mortality of 24·9 per 1000 births.

Maternal Mortality.—Puerperal Sepsis was responsible for 5 deaths (4 in the County Landward, 1 in the Small Burghs), while other diseases and accidents of pregnancy caused 3 deaths—all in the County. The total, 8 maternal deaths, represents a rate of 7·6 per 1000 births.

A total of 8 deaths during the year in a population of 57,008, may seem a small number. But it must be recollected that the population as a whole is not liable to death from those causes. Only those women who happen to be pregnant during the year are at risk, and their number is roughly represented by the number of births. It will be seen, then, that the death-rate from causes connected with pregnancy and child-birth was, during 1930, *more than ten times as high as the death-rate from tuberculosis*, when the different populations at risk are considered.

This is not a local or a temporary phenomenon. The corresponding rate for all Scotland during 1930 was 7·0 per 1000 births, and similar rates have been recorded for many years. Nor can it be said that there is much evidence that the rate of maternal mortality is diminishing. It is to be hoped that the recently introduced system of detailed enquiry into every maternal death will, in time, provide a body of information from which useful deductions may be drawn as to the conditions predisposing to such tragic events. It is probable that racial, social and economic factors, not yet included in the scope of preventive medicine, may be found of importance. Meantime, this annual mortality among young married women must pre-natal supervision possible. In several cases death has been due to causes which would almost certainly have been detected, and might probably have been remedied, had medical aid been sought before the actual date of confinement. A scheme to provide such service is a comparatively simple matter in towns, where a centre can be established which expectant mothers may be induced to attend for advice. Such centres, however, are of value only when the population they serve is within easy reach. They have no place in rural administration where provision must be made for a widely scattered population, and where a scheme of which the local general practitioners and the district nurses form the basis is the only promising one.

A GENERAL.

With the exception of the coal mining district in Kirkconnel, the County is predominantly an agricultural one, and the Small Burghs, although to some extent engaged in manufacture, do not present any special problems of occupational disease.

So far as the rural districts are concerned, housing is, perhaps, the most pressing general question. As I had occasion to point out in my Annual Report for 1929, this differs fundamentally in rural districts from the housing problem in towns. I need not reiterate the arguments used in that Report, further than by repeating that the essentials governing the provision of houses in the County are that there must be sufficient work within reasonable distance to give employment to the inhabitants, and that water supply, drainage, and transport must be available.

Amongst those, water supply presents—at least to the Medical Officer—the most difficult problem. The cost of providing public water supplies has increased to such an extent since the War, and the rates, out of which that cost must be paid, are so small in sparsely populated rural districts, that the formation of new water systems is a matter of very great difficulty.

A number of water schemes have been proposed in recent years, enquired into and, in most cases reported on in considerable detail. Amongst those may be mentioned a large scheme in the vicinity of Dumfries, a scheme in the Lochmaben area, one at Beattock, one in West Canonbie, and others at Dunscore, in Cummertrees, and at Moniaive. Only the last-named proved practicable, and that because the area of supply was a village in which the property was not de-rated and where no expenditure on distribution piping was required. I regard this matter of water supply as constituting the most important environmental factor affecting health in the County at present. It is not only that an unsatisfactory water supply may be responsible for the spread of water borne disease—fortunately of rare occurrence—but that it often entails a low standard of personal cleanliness, with a corresponding liability to disease.

The discussion of other matters affecting health is perhaps best confined to the special sections dealing with them.

B. GENERAL ENQUIRIES.

No general enquiry has been undertaken during the year other than those which are inseparable from routine work, and which are referred to under the appropriate headings.

C. WATER SUPPLIES.

The work during the year has been mainly the investigation of supplies for proposed new districts. The fact that contamination of the Ecclefechan Public Supply had made possible the epidemic described on pages 22-30, led

Annandale sources, through Middlebie, Hoddom and Cummertrees, it would be possible to combine the Lower Annandale, Eaglesfield and Ecclefechan Special Districts, supply the whole of Cummertrees parish, and probably augment the Ruthwell and Raffles supply. After consideration, however, the Public Health Committee decided that the cost of such a scheme would be too great to face at present.

Arrangements were therefore made to have the Ecclefechan system put into such a state as to render impossible any repetition of the 1930 epidemic. The greater part of the spigot and faucet pipes had been lifted and rejointed with cement, the surroundings of the springs made water-tight with puddled clay, and some of the lower springs entirely cut off. This work was regarded as a necessary temporary expedient, pending consideration of the advisability of further protection. The Committee decided that it would be advisable to have the water filtered as an additional safeguard, and plans for the provision of filters were under consideration at the end of the year.

The water supply of Dunscore and it's neighbourhood was again investigated. A source, which appears satisfactory, has been found, but it is at such a distance from the Village as to make the necessary works rather costly, and it remains to be seen whether the rateable value of any Special District which could be formed would be sufficient to meet the capital cost.

The present water supply to Dunscore is most unsatisfactory, and were any disease capable of being spread by water introduced into the Village, the consequences might be very serious.

The possibility of forming a Special District in the south-western part of Closeburn was under examination at the end of the year.

Complaints of discolouration of the Kirkconnel supply were received. Those referred to both the " old " and the " new " systems. The defects in the latter were apparently due to some of the filters having been worked too fast, and when the daily flow had been more evenly distributed, the complaints regarding this part of the supply ceased. The defects in the "old" supply require more radical measures. In consequence of my report to the Public Health Committee, Mr Easton, M.Inst. C.E., Glasgow, was instructed to prepare plans and schedules for the work necessary to put this part of the scheme into proper order, and this was being done at the end of the year.

A serious shortage of water occurred at Lochmaben Sanatorium during June and July. The supply to the Sanatorium is taken from that to Lochmaben Burgh, which suffered equally. A certain augmentation of the supply was obtained by taking in some extra springs, but for a considerable time the activities of the institution were much hampered. The storage capacity of the reservoirs should have been amply sufficient to maintain a sufficient supply for both Burgh and Sanatorium during the dry period, but the existence of undetected leaks in the system caused a rapid loss of water.

A somewhat similar crisis arose at Moniaive in the middle of July, when intimation was received one Sunday evening that the reservoir was almost dry. It was visited at once, and gaugings taken, which showed that the amount of water entering the reservoir was in excess of the daily consumpt in the Special District. This pointed to serious leakage, which, as a matter of fact, was detected and remedied at once. No further trouble arose.

The conditions at Blackshaw remain as formerly described. Periodic and well-founded complaints of shortage at the end of the pipe-line are received.

A temporary shortage on the Bankshill system, due to a burst pipe, was detected and remedied at once.

D. & E. DISPOSAL OF SEWAGE AND POLLUTION OF RIVERS.

(1) NITHSDALE.—No instance of serious pollution of the upper reaches of the Nith by coal washings was reported during the year. As stated in last year's report, new filters and extra silt tank accommodation are in process of construction at Kirkconnel.

The Town Council of Sanquhar decided to provide new works to take the Burgh sewage, and the engineer's report had been approved, although work had not actually been commenced before the end of the year.

The sewage works at Thornhill continue to function satisfactorily, though they require regular, skilled attention.

The new works at Moniaive were completed during the year, and have caused a good deal of trouble since beginning operations. Complaints of smells were received from Dunreggan and proved well justified. They were traced to the fact that, as only a small number of connections to the sewer had been made, the bulk of liquid entering the tanks was small, took a long time to pass through the works, and was "over-septicised" in the process. This was got over by side-tracking the two larger tanks as a temporary measure, thus shortening the period of treatment. No further complaints of smells were received.

Further trouble has since been caused by the excessive amount of pumping necessary, suggesting the entry of large quantities of sub-soil water into the pipes. This matter is at present being investigated by the engineer.

The condition of the lower reaches and tidal portion of the river remains unchanged.

Only one series of chemical analyses, from the County boundary to the sea, was made last year, as pressure of other work was considerable.

(2) ANNANDALE.—The main point of interest in this area was the construction of sewage works at Eaglesfield, almost completed at the end of the year. The difficulty of providing such works has always been the fact that Eaglesfield has two "summits" and three "valleys" in

its contour. The first suggestion was that pumping stations should be provided to lift all the sewage to a central works. This idea was finally abandoned, and it was decided to form the main works near Cowhill Farm, to serve the major portion of the Village, while tanks were provided behind Kirtlebridge Station and at Sunnybrae, with overflows to an old quarry hole and to the Kirtle respectively, to take the sewage from the two extremities of the Village.

The long discussed sewage works for Ecclefechan are at last on the point of being provided. A scheme was prepared by Messrs Warren & Stuart, Glasgow, comprising the laying of sewers throughout the Special District, as formed by the former Lockerbie District Committee, and the provision of a septic tank, with subsoil drains on the bank of the Mein Water. In the meantime, appeals against their inclusion in the Special District had been intimated by two proprietors. One of these was settled by mutual agreement, the property concerned being excluded on condition that satisfactory arrangements for sewage disposal were made and any infringement of the Rivers Pollution Prevention Acts avoided. The other appeal went to proof before the Sheriff, but was finished, before any evidence had been led for the County Council, on a slight modification of the suggested line of the sewer being made. Work on the sewers and tank had not been begun by the end of the year.

(3) Eskdale.—The Langholm sewage works continue to give a satisfactory effluent. There is no change in the state of affairs at Rowanburn.

Reference to the various samples of river water and sewage made during the year will be found in the report by the Public Analyst (pages 102 and 106).

make 9 houses. Plans for alterations or additions to 87 existing houses were also submitted.

Eighteen "non-subsidy" houses were completed during the year, the details being :—

(a)	With three rooms	....	5
(b)	" four rooms	....	7
(c)	" five rooms	....	2
(d)	" six or more rooms	....	4
	Total	....	18

Fifteen "subsidy" houses were completed during the year.

The number of working-class houses throughout the County appears to be adequate, except in Kirkconnel, where 18 per cent. of the two-roomed houses and 6·6 per cent. of the three-roomed had more than three inhabitants per room. But though overcrowding is an unimportant feature in the rural districts, it is so only because a number of poor houses remain in occupation. A general survey of the smaller houses in the County is being made at present.

No action under Part I. of the Housing (Scotland) Act, 1930, is contemplated at the moment.

The number of houses inspected in the County Landward during the year was 2453. Of those, 1328 formed part of the general housing survey which is at present taking place.

Ten houses were reported as proper subjects for Closing Orders, under the Housing (Scotland) Act, 1925, and the Order was made by the Local Authority in each case.

Six notices were served under Section 3 (1) of that Act, and in 198 cases housing defects were remedied by owners without either making of orders or service of notice.

Under Section 20 (1), which requires provision of sufficient water-closet accommodation, 81 intimations were made. In 72 cases the necessary accommodation had been provided by the owners before the end of the year.

No proposals to erect houses of one or two apartments were sanctioned by the Local Authority.

No notices under Section 40 (1) of the Housing, Town Planning, etc. (Scotland) Act, 1919, were made, but a proper supply of water was introduced in 15 houses formerly insufficiently supplied.

In one instance a Demolition Order was substituted for a notice under Section 14 (1) of the Housing (Scotland) Act, 1930.

G. HOUSING (RURAL WORKERS) ACT, 1926.

Sixty-four applications for grants under this Act were received during the year, and 60 of those were approved.

Of those refused, two were in respect of houses larger than those dealt with under the Act, in one the work had been practically completed before application was made, and in one case the house was in such poor condition and on so unsatisfactory a site that I did not feel justified in recommending expenditure of public money on it.

Works under this Act were completed on 41 houses during the year.

So far as housing in agricultural districts is concerned, this Act is the most valuable piece of legislation at our disposal. One only regrets that it is not made use of more fully. The following notes indicate the type of improvement which may be attained by its means. Those instances are drawn from several years' experience, and are chosen to exemplify the different types of house to which the Act is applicable :—

(1) This was a row of four cottages with room and kitchen each. They were in very poor order owing to general damp and disrepair. The floors were flagged, damp and broken, the lighting inadequate, the roof leaking,

three, each with three rooms, scullery, coalhouse and larder. The ceilings were raised to a height of 9 feet, the walls repaired, pointed and lined internally with thistle boarding, seven new windows put in, and new floors provided. A detached building was provided, immediately behind the houses, with a common washhouse and three water-closet apartments. Drainage was provided from this and also from the sinks which had been put into the sculleries.

As a result, four almost derelict houses without any sanitary provision were converted into three good and fully equipped dwellings, differing only from new houses in that they are somewhat less compactly arranged, at a total cost of £579 19s, of which £200 was a grant under the Act.

(2) This house consisted of three living rooms, a small scullery and milk-house. In January, 1928, I reported it to the Lockerbie District Committee—then the Local Authority—as unfit for habitation. Its floors were all constructed of stone flags, broken and damp, the walls were unlined and damp, the ceilings damp sagging and cracked. The roof was in bad repair and leaking, the chimneys in need of rebuilding, the surroundings badly drained and increasing the dampness of the building, and there were, in addition, a number of minor defects. There was a wooden privy and water supply was from a pump about ten yards from the door.

The walls, however, were sound and it seemed likely that the house could be completely reconstructed at a less cost than would be entailed by building a new one.

The proprietor was an old man in very feeble health and unfit to attend to business. He made no attempt to repair the property.

The Local Authority made a Closing Order on my recommendation, but the proprietor died in the meantime, and his heir made application for a grant under the Rural Workers Act.

A new roof was put on, the height of the ceilings being raised. New floors were provided, with sub-floor ventilation. The walls were lined internally. The structure was generally overhauled and repaired, a water-closet, a scullery with sink and wash-tub were constructed, and the surrounding ground levelled and drained. As completed, the house consisted of a kitchen, two bedrooms, a scullery-washhouse, larder, fuel store, and w.c., with water laid on and proper drainage.

The certified total cost was £279 11s 6d.

(3) A row of four cottages, of which three had two and one had three rooms, with, in two cases, small sculleries. Two also had back kitchens and one a fuel store. The houses were in fair condition but small, inconveniently arranged and badly lighted, and with no sanitary provision except earth closets.

Reconstructed, they now consist of three cottages, two of three and one of two rooms, each possessing also a scullery with sink, a larder, and fuel store, a separate water-closet and a common washhouse for the three. The roofs have been raised and renewed, new floors laid, and the lighting brought up to the standard by forming new windows in all the living rooms. The total cost for the three is estimated at £531 10s 8d.

(4) A self-contained cottage with two living rooms, back kitchen and small store with no inside water supply, drainage for roof water only, and no internal sanitary fittings.

The back wall was raised, a new roof constructed, and the interior rearranged. New floors were provided, lighting increased, and numerous small repairs and improvements made. Water was introduced to the house and a new washhouse built.

When completed the house consisted of three living rooms, scullery, larder, w.c. apartment, and separate a sink. The structure was good but the house rather damp in consequence of its low lying, badly drained site.

An area was excavated round the house, concreted and drained. The structure was put into good repair generally, lighting increased throughout, and new building provided to give the necessary conveniences. As completed the house consisted of three living rooms, scullery-washhouse, larder, fuel store, and w.c., with an up-to-date drainage system. The cost was £218 12s.6d.

(6) An old building, formerly a barn and cellar, which had not been used for years but was in excellent structural condition.

This was converted into a commodious dwelling-house with four living rooms, bathroom with bath and w.c., scullery, larder, fuel store, and washhouse. A modern system of drainage was introduced. The total actual cost was £391.

(7) A large store built of stone and slate roofed and in very good structural condition was converted by internal rearrangement and a small amount of new building, into an excellent farm worker's cottage. When completed the house contained four living rooms, large scullery-washhouse, larder, bathroom with fixed bath and w.c., and outside fuel store. The total cost was £396.

In both the last cases the cost of reconstruction comes within measurable distance of that of building a new cottage. In both, however, the houses are much more spacious and certainly of far better workmanship and material than cheap modern houses would be.

(8) Two cottages, each of room and kitchen, with, in one case, a small lean-to, had remained unoccupied for some time. They were without sanitary conveniences and water had to be carried from a roadside tap. They were purchased by a working mason, who converted first one and then the second into good modern cottages.

When completed each consisted of two living rooms, a scullery-washhouse, larder, fuel store, and w.c. Water, of course, had been introduced into the houses, and proper drainage provided. The roof had been raised, additional lighting provided, and the houses were quite as good as new. The cost in one case was £191 11s 7d and in the other £207.

H. TOWN PLANNING.

No discussion on this took place during the year. Assuming that the Town and Country Planning Bill at present before Parliament becomes law, either in its present or some altered form, the problem in the County will inevitably resolve itself into a question of water supply as on this all other social developments in rural areas mainly depend.

I suggest that the provision of gravitation water on a large scale must in future years be a matter for very earnest consideration by the Council. The County's water resources have hardly been tapped; there are several places where reservoirs could be constructed which would store ample water for all the inhabitants of Dumfriesshire; the vast cost of distribution is the main obstacle.

If any town or country planning schemes can help in this matter they will justify their existence.

I. INFECTIOUS DISEASES.

The number of notifications of infectious diseases received from the County Landward and the Small Burghs during 1930 was 666. This figure is not comparable with those for former years, as the statistics for County and Burghs used to be kept separate. The special points to be recorded for 1930 are the great increase in the number of notifications from Enteric Fever, due to the Ecclefechan outbreak, a distinctly increased prevalence of Scarletina, and a diminished incidence of Diphtheria. Influenzal fication) Act, 1889, or the Regulations made under Section 78 of the Public Health (Scotland) Act, 1897, were :—

Enteric Fever	70
Scarlatina	200
Diphtheria	47
Erysipelas	29
Puerperal Fever	6
Ophthalmia Neonatorum	9
Chickenpox	99
Infantile Paralysis	1
Encephalitis Lethargica	1
Acute Primary Pneumonia	51
Acute Influenzal Pneumonia	7
Pulmonary Tuberculosis	75
Non-Pulmonary Tuberculosis	59
Puerperal Pyrexia	12
Total	666

The Age-incidence is shown in the following table, which is summarised from the returns made to the Department of Health :—

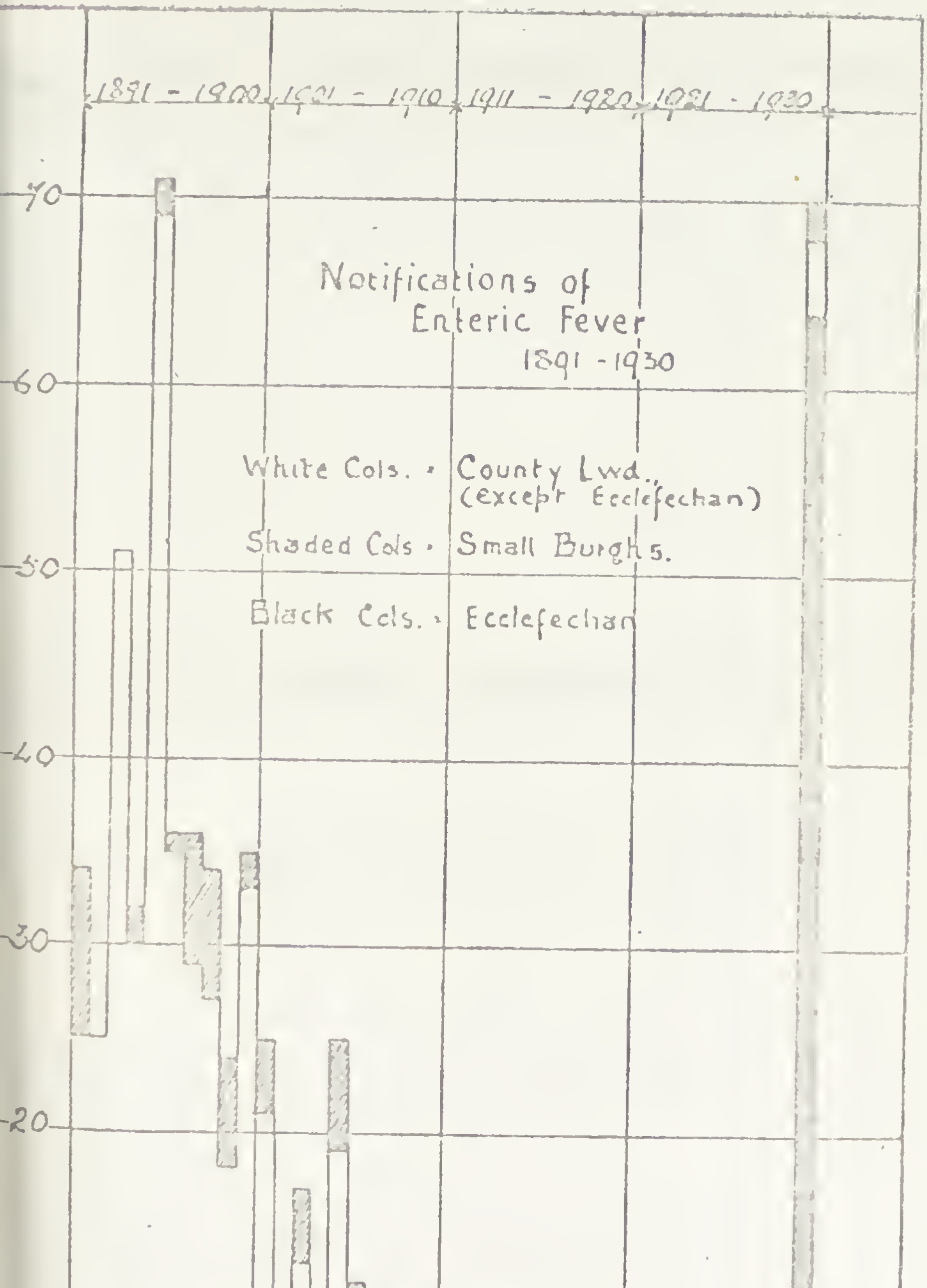
	At all Ages.	Under 1	1-5	5-15	15-25	25-45	45-65	Over 65
teric Fever ...	70	...	4	26	15	14	10	1
rlatina ...	200	..	37	116	23	22	2	...
htheria ...	47	...	5	27	7	6	...	2
sipelas... ...	29	...	...	3	1	12	11	2
rperal Fever ...	6	...	...	...	2	4	...	...
thalmia Neonatorum ...	9	9	...	...	...	...	...	
ckenpox ...	99	6	25	58	8	2	...	...
antile Paralysis	1	...	...	...	...	1	...	...
ephalitis Lethargica ...	1	...	...	...	...	1	...	...
e Pneumonia	51	5	11	4	8	8	11	4
luenzal Pneumonia ...	7	...	...	1	...	...	3	3
monary Tuberculosis ...	75	1	1	5	21	28	14	5
n-Pulmonary Tuberculosis ...	59	2	4	23	19	5	4	2
rperal Pyrexia	12	...	...	...	4	8	...	...
Total ...	666	23	87	263	108	111	55	19

The distribution of cases throughout the County was as follows :—

	TOTAL.	County Landward.									Burghs.					
		Dumfries I.	Dumfries II.	Thornhill.	Sanquhar	Annan.	Gretna	Lockerbie	Moffat	Langholm	Annan	Sanquhar	Lochmaben.	Lockerbie	Moffat	Langholm
Enteric Fever ...	70	2	...	1	1	4	2	57	...	1	[illegible]	[illegible]	[illegible]	...	[illegible]	[illegible]
Scarlatina ...	200	23	24	22	33	7	5	15	15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Diphtheria ...	47	7	7	7	6	3	4	3	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2
Erysipelas... ...	29	6	4	1	4	1	2	1	1	3	2	2	[illegible]	...	...	...
Puerperal Fever ...	6	...	...	...	1	...	2	2	...	1	...	...	...	...	...	...
Ophthalmia Neonatorum ...	9	3	...	...	...	...	1	3	1	...	1	...	...	...	...	...
Chickenpox ...	99	25	5	11	1	10	8	10	...	...	7	...	...	[illegible]	...	[illegible]
Infantile Paralysis	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Encephalitis Lethargica ...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Acute Pneumonia	51	9	1	4	3	3	6	4	1	7	1	6	[illegible]	...	2	5
Influenzal Pneumonia ...	7	1	...	...	1	...	4	...	...	...	...	1	...	...	...	...
Pulmonary Tuberculosis ...	75	3	13	12	7	9	3	3	[illegible]	[illegible]	6	[illegible]	[illegible]	2	6	1
Non-Pulmonary Tuberculosis	59	13	9	7	8	4	7	3	...	...	1	...	...	...	...	3
Puerperal Pyrexia	12	...	1	...	2	...	4	...	2	...	1	...	...	...	1	1
Total ...	666	93	64	66	67	41	48	101	24	[illegible]	[illegible]	[illegible]	17	[illegible]	[illegible]	[illegible]

Enteric Fever.—The number of notifications received—70—is the greatest in any one year, with the single exception of 1895, since notification became obligatory.

The fall in the incidence of the Enterica group of diseases during the last forty years has frequently been referred to in my annual reports, and the chart overleaf shows how great that fall has been. It is unnecessary to discuss its causes here, though it is interesting to note that it has been evident in all districts, irrespective of their sanitary state, and is probably largely consequent on an increased appreciation of the prolonged infectivity of the disease and the


1891 - 1900
1901 - 1910
1911 - 1920
1921 - 1930
70
60
50
40
30
20
10
Notifications of
Enteric Fever
1891 - 1930
White Cols. · County Lwd.,
(except Ecclefechan)
Shaded Cols · Small Burghs.
Black Cols. · Ecclefechan

essentially, to the disappearance of "endemic" typhoid—a chronic prevalence keeping a number of foci of infection constantly alive over a long period without any large single outbreak. Comparison of the disease in 1895 with the experience of 1930 emphasises this. In 1895, 71 cases were notified, representing, apparently, at least 26 foci of infection. The disease persisted throughout the entire year, and affected every part of the County; 56 of the 71 cases were secondary.

In 1930, on the other hand, 61 cases were due to a single infection occurring about the middle of August, and only 4 cases during the year were secondaries. The experience of those two years, 1895 and 1930, demonstrates the difference between "endemic" typhoid, always smouldering over a large area, and "epidemic" typhoid, occurring as a single large explosion, limited to a single area and a comparatively short time.

During 1930, 3 cases of Paratyphoid Fever and 1 observation case were notified in the early part of the year, and 1 case of Typhoid in December. The remaining 65 cases comprised the epidemic which broke out in Ecclefechan during August and September, and was due to contamination of the water supply. I feared that so extensive an epidemic, in a village devoid of sanitary arrangements, would be followed by a crop of secondary cases, but, though 4 such occurred during the actual course of the epidemic, the village remained entirely free from signs of further infection at the end of the year. One case had occurred in another part of the County, but though careful enquiry was made, no connection with Ecclefechan could be traced.

Reference to the water supply and drainage of Ecclefechan will be found on pages 9 and 13. The main facts regarding the outbreak are as follows :

The existence of Typhoid Fever at Ecclefechan was confirmed on 1st September, 1930.

1.—Removals to hospital were :—

During the week ending			6/9/30—23	cases.
,,	,,	,,	13/9/30—31	,,
,,	,,	,,	20/9/30—6	,,
,,	,,	,,	28/9/30—1	case.
Total	....	...	 61	cases.

Their distribution was :—

To Lochmaben Hospital	40	cases.
,, Langholm Hospital	16	,,
,, Annan Hospital	5	,,
	61	cases.

One confirmed case and two doubtful cases were retained at home : 57 were regarded as primary cases.

2.—All the primary cases appear to have developed the disease between 15th August and 4th September—a period of three weeks, which is generally regarded as the maximum incubation period of Typhoid Fever. Assuming that the patients who sickened on 15th August had short incubations, the whole period during which infection persisted may be cut down to a few days, probably between the 10th and 14th of August. Evidence on this is—

(a) Two patients who left Ecclefechan on 10th and 11th August, respectively, developed Typhoid later, showing that infection was present in Ecclefechan by 10th August.

(b) One patient who arrived at Ecclefechan on 12th August developed Typhoid in England on 1st September, showing that infection was present in Ecclefechan on or after 12th August.

(c) All the 57 primary cases occurred within twenty-one days of 14th August.

(d) Forty-two per cent. of the primary cases developed within ten days of the period 10th-14th August.

3.—An outbreak of this explosive nature was evidently due to one of three causes—

(1) Infection by water.

(2) Infection by milk.

(3) Infection by some common foodstuff.

The hypothesis that the infection was spread by water, and not by either of the other possible methods, rested on the following evidence :—

(a) Cases occurred only amongst persons living in, or who had recently lived in, the Ecclefechan Special Water District.

(b) The case-incidence (57 primary cases only) amongst inhabitants of the Special Water District was equal to 55 per 1000.

(c) The age-incidence of the 57 primary cases was :—

Under 5 years	3 cases
5-10 ,,	13 ,,
10-15 ,,	11 ,,
15-25 ,,	11 ,,
25-45 ,,	13 ,,
45-65 ,,	5 ,,
Over 65 ,,	1 ,,
	57 cases.

It will be seen that 30, or roughly 53 per cent., were over the age of 15, which suggests no special incidence on the "milk drinking" or "ice cream" eating ages.

(d) No common factor, other than water, could be detected amongst those affected. At least 19 separate milk supplies were used by patients, and in several instances those were private supplies used only by persons at the farms where cases occurred. No evidence of mixing of milks could be obtained, and having regard to the conditions of the milk supply to the district, it is in the highest of food was common to any number of patients. (It is to be recollected in this connection that, except for inhabitants of the village itself, Ecclefechan is not a shopping centre, and people living in the Special Water District often obtain supplies from Lockerbie and Annan).

(e) No man *resident* in Ecclefechan but *working* elsewhere is known to have contracted the disease.

(f) *Per contra*, at least three men, resident elsewhere but *working* in Ecclefechan during the first half of August, did contract it. In view of the fact that workmen generally take their *food* with them from their homes but obtain *water* in the locality where they work, those facts are significant. Of the three men referred to, two are known to have drunk large quantities of water in Ecclefechan while none of them drank any milk there.

(g) St. Fechan's Sanatorium, which has accommodation for over 40 patients, besides staff, is situated in the Special Water District, and escaped entirely. It has a private water supply as well as the district water. The private supply is exclusively used for drinking.

The milk supply to this Sanatorium is also used by seven households amongst which cases occurred.

(h) The weather during the earlier part of August was hot. Many patients admit to having drunk exceptionally large quantities of water during that time.

4.—Adopting, for the purpose of investigation, the hypothesis that the infection was being spread by water, the next question was whether infection was gaining access to the water at the source or in course of distribution. The evidence, mainly negative and admittedly weak, pointing to the source was :—

(a) Absence of sewers in the area, and therefore impossibility of sewage passing from sewer to water pipe by constructional faults.

(b) Absence of indication of any leak likely to permit infection reaching the water from any other source.

(c) Distribution of the cases suggested infection at the source rather than at any other point in the system.

As tending to implicate the Haregills Tank rather than that at Cowthat, the evidence again was mainly negative.

(a) There is no obvious or permanent source of possible contamination near the Cowthat Tank.

(b) The Cowthat Tank is an auxiliary supply, coming into action only when that at Haregills falls below a certain point. It is doubtful whether it was ever in action during August. Investigations were therefore begun at Haregills. No history of Typhoid Fever, or any illness suggesting it, could be got from anyone living at Haregills.

The farm servants (four in number), who had all come to the farm within the past three and a half years, were therefore subjected to Widal's test. Two gave entirely negative results; one, an ex-soldier, gave a result obviously due to old inoculation; the fourth, a middle-aged man who had never been in the Army and had never been inoculated, gave a positive result (1 in 50) to B. Typhosus.

This man thereafter submitted samples of fæces and urine daily.

From the second fæcal sample bacilli were isolated, which gave the bio-chemical and serological tests for B. Typhosus (Eberth).

The man thus proved to be a carrier was immediately removed to hospital.

The hypothesis that the infection had been spread by water was thus strengthened by finding a carrier employed in the water-collecting area.

5.—Evidence as to the way in which infective material may have gained access to the water is:—

(a) Existence of a faulty land drain passing close to the tank and receiving its overflow. At at least two points there was a hole leading from the surface of the ground to the interior of the land drain. It was evident that were the land drain overcharged its contents might pass via the overflow to the interior of the tank.

from several wells crossed the land drain. The drain and the pipe joints were all open, the water in the drain and that from the spring mingling freely. Were any infective matter on the surface, it might obviously gain access to the water very easily.

6.—The position may be summarised—

(a) The outbreak had the characteristics of a water-borne epidemic.

(b) A source of active infection was found in the water-collecting area.

(c) Infective matter deposited on the ground near the collecting tank might easily get into the water in several ways.

(d) No hypothesis, except that of spread by water, can be made to fit the facts of the case.

7.—PRECAUTIONARY MEASURES.

A.—*General.*

In order to detect any mild or doubtful cases, all houses from which children were absent from school when the outbreak was confirmed were visited, and the cause of absence ascertained. Much valuable information was thus gained during the first few days of this epidemic, leading to detection of several cases which might otherwise have been missed.

The medical practitioners in the area were communicated with, and I was in constant touch with them. I saw a number of cases in consultation during the first ten days. All suspicious cases were reported and kept under observation, and bacteriological tests made when necessary.

B.—*Water Supply.*

The strong probability that infection was being spread by water was evident during the first few days of the outbreak, and the presumption that infection had ceased before the existence of the epidemic was recognised became a certainty as soon as the first batch of notifications had been thoroughly analysed. Nevertheless, it was determined to chlorinate the supply until the source of infection should be discovered and removed. As a preliminary the tank was cut off from the circulation, filled with strong chloride solution, and thereafter dechlorinated, this part of the work being under the supervision of Mr Hewley, Public Analyst. Opportunity was taken, after dechlorination, to have the interior of the tank thoroughly cleaned. The supply to the village was, during this period, direct from the springs which were regarded, prior to the discovery of faulty pipes, as providing natural filtration.

After the pipes had been uncovered and faults detected I was instructed by the Committee to have them made good with cement joints and to cut off from the supply any which could not be so safeguarded. This was done. Three of the springs have been cut off, as they appeared to be dangerously close to the land drain. The work now completed should make the supply safe for use until the engineer's report on the whole question has been considered and appropriate action taken. Chlorination was continued during the progress of the work.

C. —*Milk Supply.*

To avoid the risk of an unrecognised case occurring in a dairy and perhaps becoming the focus of a new outbreak the following precautions were taken :—

(a) All persons employed about dairies in the district were seen personally by a member of the Public Health Staff and were warned to report the slightest case of illness at once.

(b) Specimens of blood were taken from all persons connected with the dairy trade, and subjected to the Widal's test.

(c) All cattle in the area of the epidemic were examined by the Veterinary Inspector.

D.—*Hospital Isolation.*

As noted above, 61 cases were removed to hospital. Of those 2 died, and 1 was discharged after observation, as it was evident that she was not suffering from Typhoid Fever.

For the others, the standard of fitness for discharge was (1) complete recovery, judged clinically, and (b) three consecutive negative results of bacteriological examination of stools and urine.

A considerable number of the cases removed were severe, and the very low death-rate—3·3 per cent.—reflects much credit on the treatment and the nursing at the County Hospitals.

It is a matter of gratification that the discovery and removal of the cause resulted not only in the immediate cessation of the outbreak, but appears to have effectively prevented any recrudescences. No case in any way connected with the Ecclefechan outbreak occurred during the remainder of 1930.

Two points are specially emphasised by the investigation of this outbreak—first, that a constructional fault may remain unrecognised and unsuspected for many years and then produce very serious effects. As I took occasion to emphasise some years ago in connection with another and, apparently, a less satisfactory source than that at Ecclefechan, years of immunity are no guarantee against the occurrence of water-borne disease; second, that an epidemic such as this is due to the operation of many factors. That "Nature permits no phenomenon to arise from an isolated cause" is specially true in epidemiology. In this case the joints of the water-pipes had probably been faulty for years; the carrier had worked in the collecting area for over three years and, in all probability, had been infective during the greater part of the time; the possibility of infectious material passing rapidly from the surface of the ground to the neighbourhood of the faulty joints certainly existed long before the epidemic; heavy rains, which in this instance probably precipitated the outbreak, had frequently occurred before. Along with this we must set the short duration of life of uncultivated Typhoid

Bacilli outside the human body and the many obstacles which may obstruct the passage of contaminating matter from the surface of the ground to the pipes below. In fact, such an outbreak requires a chain of favourable circumstances which only rarely exists. Were it not so, water-borne disease would be a phenomenon far commoner that it really is.

Of the total 70 cases notified during the year, 67 were removed to hospital.

The statistics of the Enterica group of diseases in the County and Small Burghs during the last five years are as follows :—

	1926.	1927.	1928.	1929.	1930.
Cases	2	3	3	5	70
Deaths	....	...		.	3
Morbidity per 1000 ..	0·03	0·05	0·05	0·08	1·2
Mortality per 1000	..	...	...	...	0·05
Case-fatality per 1000 .	...	....	..	...	43

Scarlatina.—One hundred and fifty-five cases were notified from the County Landward and forty-five from the Small Burghs, making a total of two hundred. This is an increase of fifty-three on the previous year.

The infection was widely distributed through the County, thirty-three parishes being affected. Sanquhar and Kirkconnel, Dumfries Landward, Kirkmahoe, and Kirkpatrick-Juxta suffered most, ten or more cases having been notified from each of those. It is of interest to note that nine cases were notified from Corrie during the first half of the year, this being apparently the result of the prevalence which, during 1929 had been evident at Sibbaldbie and Boreland.

The greatest incidence during the year was in Sanquhar, where twenty cases occurred during the last four months of the year. A number of those came from Crawick Mill, and there was also a small prevalence at Wanlockhead.

were obtained in several instances, as usual too late to be of any use.

Annan had eight cases and Lochmaben nine.

Generally speaking, the disease was mild and widely distributed, without any definite epidemic prevalence.

The statistics of scarlatinal prevalence in the County Landward and Small Burghs during the last five years are as follows :—

	1926.	1927.	1928.	1929.	1930.
Cases	180	93	180	147	200
Deaths	3	1	1	2	1
Morbidity per 1000	3·0	1·5	3·0	2·5	3·5
Mortality per 1000	0·05	0·02	0·02	0·04	0·017
Case-fatality per 100	16·6	10·7	5·5	13·6	5·0

Diphtheria.—Both in the County Landward and the Small Burghs, Diphtheria was low in incidence during the year. Only 39 cases were notified from the Landward areas, this being the smallest number in any one year since 1909, while from the Small Burghs only 8 notifications were received.

The majority of the notifications came from Dumfries 1 and 2, Thornhill and Sanquhar districts.

Forty-six cases were removed to hospital. Of the total, 28 were bacteriologically confirmed.

Five cases ended fatally. Of those, one (a boy of nine) had been ill for a week before a doctor was called, by which time he was in a dying condition. Another was a woman, aged 74, who died on the day on which notification was received. The others were young children. The number of deaths from Diphtheria is above the average and, in view of the small number of cases, shows a very high case-fatality.

The statistics of Diphtheria in the County and Small Burghs during the last five years have been as follows :—

	1926.	1927.	1928.	1929.	1930.
Cases	69	55	90	74	47
Deaths	1		2	—	5
Morbidity per 1000	1·1	0·9	1·3	1·2	0·8
Mortality per 1000	0·016	—	0·032	—	0·08
Case-fatality per 100	14·5		22·2		106

Erysipelas.—The notifications received were 29, and call for no special comment. Two cases were removed to hospital.

Puerperal Fever and Puerperal Pyrexia.—Six notifications of Fever and 12 of Pyrexia were received. Hospital provision, either at an isolation hospital or elsewhere, was made in 7 instances.

Cerebro-spinal Fever.—One notification was received and the patient removed to hospital. Examination of the cerebro-spinal fluid showed that the case was one of Septic Meningitis—not the epidemic form. The patient died.

The reports on Tuberculosis and Venereal Disease will be found on pages 51 and 52.

The other conditions notified call for no special comment.

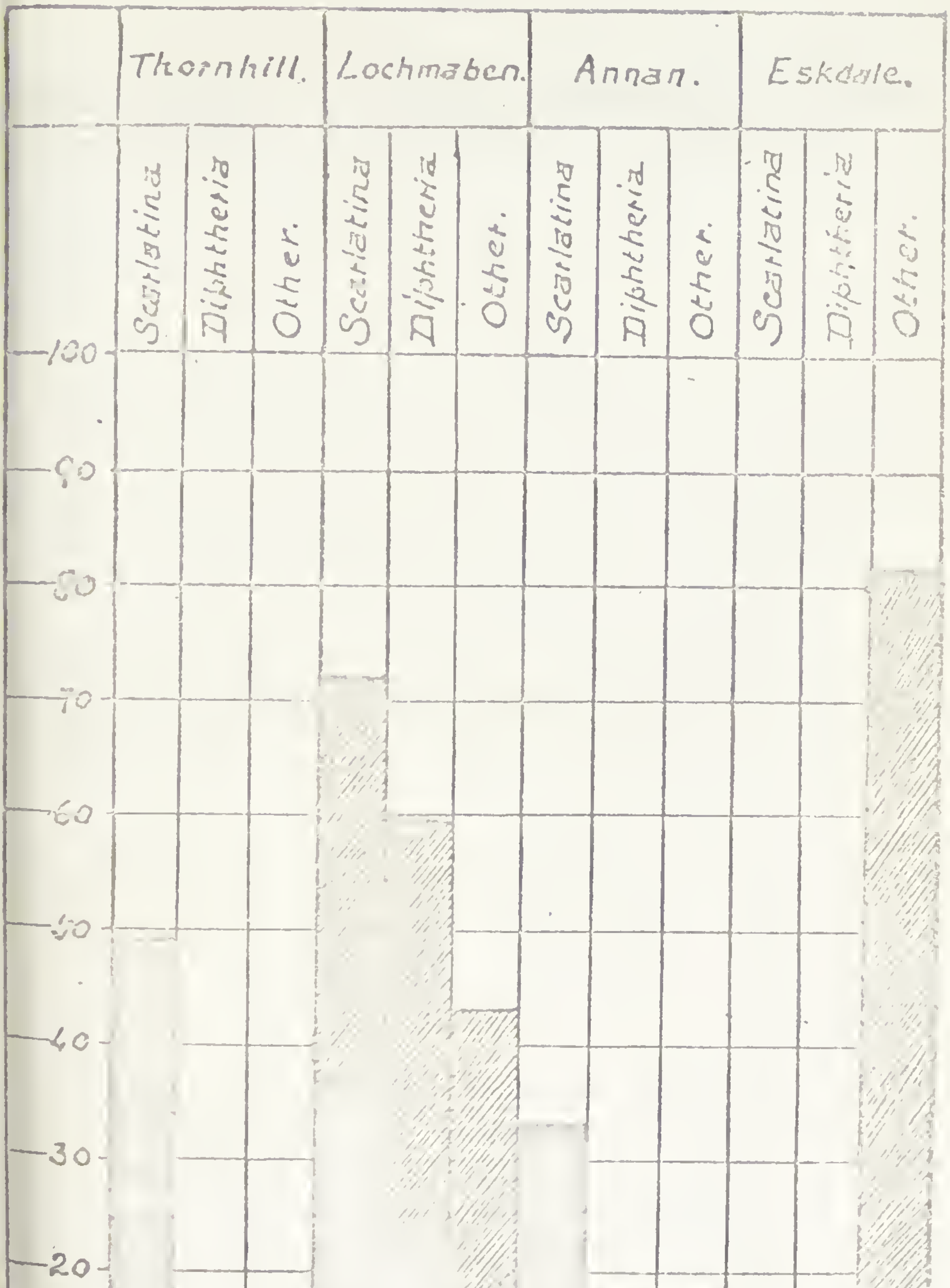
Isolation Hospitals.

The total number of patients admitted to the Council's isolation hospitals during 1930 was 319. Details are given in the following table:—

Hospital.	Enteric Fever.	Scarlatina.	Diphtheria.	Other.	Total.
Thornhill	2	67	17	1	87
Lochmaben	44	69	15	9	137
Annan	6	16	8	3	33
Eskdale	16	11	3	2	32
Total ...	68	193	43	15	319

The percentage of accommodation actually used is shown below. Sanatorium and Smallpox beds are not included.

The accommodation used for cases of Enteric Fever was, in consequence of the Ecclefechan outbreak, much in excess of that ordinarily required, and is shown by the


Thornhill.
Lochmaben.
Annan.
Eskdale.
Scarlatina
Diphtheria
Other.
Scarlatina
Diphtheria
Other.
Scarlatina
Diphtheria
Other.
Scarlatina
Diphtheria
Other.
100
90
80
70
60
50
40
30
20
10

K. SCHOOL CLOSURE.

No schools were closed on account of infective disease during the year.

L. LIST OF HOSPITALS.

M. BRIEF REVIEW OF THE HOSPITAL POSITION OF THE AREA.

Those may conveniently be dealt with together by including here an excerpt from a report on medical services which I submitted to the Public Health Committee :—

"Excluding the institutions administered by the Large Burgh of Dumfries, the hospital accommodation at present available in Dumfriesshire is as follows :

	Beds.	
(a) Voluntary Hospitals—		
Dumfries and Galloway Royal Infirmary	115	
Hope Hospital, Langholm	14	
Moffat Cottage Hospital	8	
Glencaple Convalescent Home	9	
		146
(b) Isolation Hospitals—		
Lochmaben	35	
Annan	27	
Thornhill	27	
Langholm	20	
Castlehill	12	
		121
(c) Sanatoria—		
Lochmaben (for Dumfriesshire)	53	
(d) Poor Law Institutions—		
(Beds allocated for sick only)	27	
(e) Private Establishments—		
St. Fechans Sanatorium	44	
Grand total		391

allocated as sick beds in Upper Nithsdale and Notwen are not likely to be regarded in future as suitable for hospital purposes ; and forty-four are in a private establishment. There remain 267 beds, of which 146 are in voluntary establishments, and 121 in isolation hospitals controlled by the Council.

Isolation Hospitals.

Apart from Tuberculosis and Smallpox, for which special provision is made, the infectious diseases for which institutional treatment has been arranged by Local Authorities are :—(1) Enteric Fever, (2) Scarlatina, (3) Diphtheria, and (4) other infectious diseases, as occasion requires, if accommodation be available.

These diseases are treated in four isolation hospitals :—

(a) Lochmaben Hospital (35 beds), which served Dumfries and Lockerbie Districts, and the Burghs of Lochmaben, Lockerbie, and Moffat.

(b) Thornhill Hospital (27 beds), which served Thornhill District and Sanquhar Burgh.

(c) Annan Hospital (27 beds), which served Annan District and Annan Burgh.

(d) Eskdale Hospital (20 beds), which served Langholm District and Langholm Burgh.

The ratio of beds to population in the area served by those four hospitals is—

Lochmaben	1 bed to 639 persons
Thornhill	1 bed to 541 persons
Annan	1 bed to 628 persons
Eskdale	1 bed to 260 persons

or, for the whole area, including the Small Burghs, 1 bed to 542 persons.

The ratio of beds to population, which was generally taken as a standard when arranging provision for infectious diseases, is 1 bed to 1000, or even 1500 persons.

It will be seen that the existing provision in Dumfriesshire is much in excess of this, the explanation being that the hospitals were originally designed to serve a wide district, with only horse transport available for the Ambulance service. As each hospital is more than sufficient for all ordinary requirements in its district, it follows that there is generally a considerable number of beds in excess of the actual annual needs of the County.

The amount of the accommodation available which was actually used during the four years 1926, 1927, 1928, and 1929 was (to the nearest integer):—

	1926.	1927.	1928.	1929.
Thornhill	21%	16%	17%	11
Lochmaben .	49%	18%	32%	39%
Annan	23%	15%	9%	10%
Langholm	10%	3%	22%	25%

Those figures represent the percentage over the whole year. It has frequently happened that the accommodation in one of the hospitals has been insufficient to meet the requirements of a short epidemic period, though the wards may have been nearly empty for the remainder of the year. For example, Thornhill was quite full for a short time during 1928, and patients had to be sent to Lochmaben. Nevertheless the total accommodation used over the whole year was only 47 per cent. of that available.

It is obvious that the system is not economic, and that one large central institution would be preferable to four small hospitals, each too large in ordinary years but sometimes insufficient during epidemic periods.

Apart from the obvious economy that would result from centralising all infectious diseases in one hospital, there would also be an increase in efficiency. The successful treatment of Fevers depends—more, perhaps, than any other department of medicine—on good nursing. The more extensive the experience a nurse acquires of the special diseases she is dealing with the less is the likelihood of mistakes occurring. Such experience is to be gained more quickly in a large hospital always fairly busy.

small one. This applies specially to staff nurses who are already trained, and who naturally regard the small country hospital as offering few opportunities of professional experience and little hope of promotion.

Another advantage which would result from the formation of one single central hospital for infectious diseases would be the possibility of treating acute and convalescent patients in separate wards. This has many advantages. It is obviously impossible in the existing small hospitals, but in an institution of the size I suggest would be the normal arrangement.

The main objection to treating all infectious diseases at one central hospital is the distance that relatives would have to go in order to visit patients. This would apply specially to Annan and Langholm Burghs, which are close to the existing hospitals. Those two Burghs represent a combined population of 6148 (Registrar-General's estimate 1930), or roughly one-ninth of the population, for which provision has to be made.

On the other hand, most of the larger centres of population in Dumfriesshire already send their fever patients considerable distances to hospital. Sanquhar and Kirkconnel send 13 and 19 miles respectively to Thornhill Hospital. Moffat and Lockerbie send 15 and 5 miles respectively to Lochmaben. A large proportion of patients from the extra burghal areas have to be taken long distances, and even when during epidemic periods it has been necessary to remove patients from Kirkconnel to Lochmaben, no difficulty has arisen. Moreover, the development of motor bus traffic makes it easy for relatives to reach hospital, if necessary, from any part of the County. In my opinion the time has now come when the centralising of all infectious diseases at one hospital should be seriously considered on the grounds of economy and more efficient service. I suggest that Lochmaben would be the most suitable institution. It is centrally placed, and is the largest of the existing hospitals. It has a permanent medical staff, and its connection with the Sanatorium gives it nursing and other facilities which no other hospital in the County possesses.

The existing accommodation at Lochmaben and the increases suggested are :—

	Existing.	Suggested.	Increase.
Enteric Fever	6	12	6
Scarlatina	17	36	19
Diphtheria	10	18	8
Total	33	66	33

(*Note.*—There are, in addition, two special isolation wards, each containing one bed, at Lochmaben. These are not included in the above table.)

This suggested increase is, of course, calculated only to deal with those diseases already treated.

Should it be decided to treat other diseases than Enteric Fever, Scarlatina, or Diphtheria at Lochmaben, further provision might have to be made.

Tuberculosis.—The County Council and Small Burghs control 53 beds at Lochmaben Sanatorium for the treatment of all forms of tuberculosis, and obtain beds as required at the Dumfries and Galloway Royal Infirmary for the treatment of non-pulmonary cases. The latter, however, can seldom be retained for any long period of time, though frequently occupied by cases of a type which requires prolonged treatment. If admitted to Lochmaben they may occupy, for many months, beds which could be better utilised for pulmonary cases. The average length of detention of non-pulmonary cases in Lochmaben Sanatorium during 1927, 1928, and 1929 was about 260 days. When the whole hospital resources of the County have been surveyed, it may be possible to find some more economic means of dealing with such cases.

Venereal Diseases.—Persons suffering from those but is not ideal for this type of work. Treatment ought to be given at a Central Hospital, where a few beds should be available for such patients as may require institutional treatment. The officer in charge of the work might be, as at present, an official on the Council's Staff, attending at specified times, or, if thought desirable, a member of the Hospital Staff.

Smallpox.—Hospital provision for Smallpox is at present made at Castlehill Hospital, a modern portable hospital with 12 beds.

Its situation is remote and inconvenient, its water supply unsatisfactory, and it would be difficult to supervise it, did need to use it ever arise.

The theory of "aerial connection," which led to Smallpox Hospitals being put in such out-of-the-way localities, is now exploded. There is no reason why this hospital should not be transferred to Lochmaben and used there as a relief pavilion.

There remains to be discussed the hospital service necessary for non-notifiable and non-infective conditions—such diseases as have hitherto been treated in general, as distinguished from isolation, hospitals.

Apart from beds in Poor Law Institutions, there are stated to be 146 beds in Voluntary Institutions in Dumfriesshire. They comprise—

(1) Dumfries and Galloway Royal Infirmary ...	115 beds
(2) Hope Hospital, Langholm	14 beds
(3) Cottage Hospital, Moffat	8 beds
(4) Convalescent Home, Glencaple	9 beds
Total	146 beds

Over these beds the County Council has, at present, no control. Possibly some of them might be made available for County purposes, on arranged terms, were such a policy considered desirable.

On the other hand, were the policy of concentrating all infectious cases at Lochmaben decided upon, the County

Council would have available 86 beds in Annan, Thornhill, Langholm, and Castlehill Hospitals set free in consequence of their being no longer required for infectious diseases. If it were considered inexpedient to use Castlehill Hospital as part of the General Hospital Service there would still be available 74 beds in three modern, well-constructed buildings, each capable of being converted into an up-to-date cottage hospital at relatively small expense.

Such cottage hospitals, well equipped and properly staffed, would be of the greatest value, but would not in themselves constitute a sufficient General Hospital Service. It would be necessary to have a central hospital preferably in Dumfries, with medical, surgical, obstetric and gynecological departments, as well as specialist sections for diseases of eyes, ear, nose and throat, venereal diseases, radiological and statistical departments, etc. Such a hospital might be provided by an arrangement with the Directors of the Dumfries and Galloway Royal Infirmary, if it prove possible to develop that institution along the lines suggested, or alternatively by provision of a new hospital, possibly serving the same area as the existing Dumfries and Galloway Sanatorium, and controlled by a Board representing the same Authorities.

The staff of this central hospital would be available as consultants at the cottage hospitals and for other forms of medical service provided by the County Council.

The cottage hospitals would, speaking generally, be "clearing houses" for the patients in the area. They would be fitted to take medical, surgical and obstetric cases, but not, as a rule, those pertaining to the specialist departments indicated above. A patient admitted to a cottage hospital might remain there during the whole course of his illness, or might be transferred to a general or special ward in the central hospital, to sanatorium, or to the isolation hospital as his case required. Further, The medical service of those cottage hospitals would be provided by the local medical practitioners, with facilities for consultation when desired with members of the staff of the central hospital, or with any panel of consultants which the Council might appoint under its statutory powers—*e.g.*, those given by the Puerperal Pyrexia regulations. Whether individual practitioners would be appointed for a given time to the cottage hospital, or whether each practitioner would be entitled to treat his own patients, would be a matter for the Council to decide.

It may be objected that it is illogical to propose that all infectious diseases should be concentrated at a central hospital, and that non-infectious conditions, on the other hand, should be distributed over a number of small local hospitals. But it is not really so, if the different nature of the two classes of disease be considered. I have already pointed out the disadvantages of small local hospitals for infectious disease—that they must be too large for ordinary times and often too small during epidemics, that it is difficult for the staff to keep up to a proper level of efficiency, and that the cost per bed is undoubtedly greater than in larger institutions. In the case of non-infectious conditions those objections do not apply. The number of patients requiring treatment should not vary much from time to time, and the efficient staffing of such small hospitals, all forming part of one large system, should not present the difficulties encountered in small independent units. It is possible that were we in a position to deal with the whole matter *ab initio*, it would be more economic to concentrate all general hospital work at one central institution, but having regard to the existing machinery and buildings, and the fact that some are owned by statutory and others by voluntary bodies, I suggest that the plan I have sketched provides a method of establishing an economic and efficient hospital service, and one which could be adapted to utilise both statutory and voluntary institutions.

Moreover, the provision of local cottage hospitals, to which local patients could be admitted without delay instead of remaining for weeks on the waiting list of a central institution at a distance, would increase the facilities for early and efficacious treatment, and would be well suited to the requirements of a rural district. It would, I believe, commend itself to the medical profession in the County, and is in accordance with the principle enunciated in No. VIII. of the British Medical Association's proposals.

N. AMBULANCE SERVICE.

(a) *For Infectious Diseases.*—Motor ambulances are stationed at Lochmaben, Annan, and Thornhill Hospitals. There is a horse-drawn ambulance at Eskdale Hospital. This naturally has a limited sphere of usefulness, as the time occupied in going for cases, even after horses have been obtained, is considerable. Were there an extensive outbreak in the area served by this hospital, provision of motor transport would certainly be necessary—it has, in fact, been sometimes provided from Lochmaben when patients had to be brought in from long distances. All the above-mentioned ambulances are owned and controlled by the County Council.

(b) *For Non-infectious and Accident Cases.*—Two motor ambulances are stationed at the Dumfries and Galloway Royal Infirmary. There is also a motor ambulance at the Cottage Hospital, Moffat.

For accidents occurring in the Sanquhar and Kirkconnel coalfield a motor ambulance is provided by a joint committee of the miners and the Colliery Company.

O. OUT-PATIENT DEPARTMENTS.

Under the scheme for medical inspection and treatment of school children, out-patient facilities are provided for—

Dr Ross, Carlisle, who attends periodically to deal with selected cases.

(2) *Preventive Dentistry.*—This is carried out by the Council's whole-time dentist.

Both testing of visual acuity and dental treatment are also undertaken at the schools.

(3) *Diseases of Ear, Nose, and Throat.*—The Council has confirmed the arrangement made by the former Education Authority with Dr Hall, Edinburgh, by which selected cases of such diseases are seen by him at Dumfries.

Cases of enlarged tonsils or adenoids requiring operative treatment are not dealt with as out-patients, but admitted to the Dumfries and Galloway Royal Infirmary. This, however, sometimes entails a good deal of delay.

Other out-patient facilities provided by the Council are for Venereal Diseases at Kirkbank Clinique. The work is carried out by the Council's whole-time officials. The report of the work of this clinique for 1930 will be found on p. 51.

X-ray examination of out-patients is provided by the Dumfries and Galloway Sanatorium Board at Lochmaben Sanatorium, and in addition ex-sanatorium patients residing near the Sanatorium frequently attend as out-patients for periodic examination.

P. MEDICAL CARE AND NURSING OF THE SICK POOR.

(a) *Institutional.*—A total of 27 beds is allocated for the treatment of sick poor in the Council's two Poorhouses—Notwen House and Rowantree House. A majority of the cases dealt with in the sick rooms of those institutions are aged and infirm persons who require rest and general attention rather than skilled nursing. Cases which require operative treatment are sent to the Dumfries and Galloway Royal Infirmary.

No alteration in the arrangements for medical attendance at those institutions has been made since the Local Government (Scotland) Act, 1929, became operative.

(b) *Domiciliary.*—The arrangements for medical attendance on the sick poor have not yet been reviewed by the Council, and the parish medical officers, who acted under the former parish councils, continue to do so meantime.

The nursing of the sick poor in their homes has hitherto been one of the functions of the Local Nursing Associations. Those are voluntary bodies who provide nursing services in their own areas, and with whom the Council arrange for the performance of certain statutory duties—i.e., those connected with Maternity and Child Welfare, Medical Inspection and Treatment of School Children, and Tuberculosis. There are at present nineteen such associations, employing a total of twenty-two nurses. The following table shews the areas served and the number of nurses in each :—

Nursing Association.	No. of Nurses	Area.
Glencairn.	1	Glencairn Parish.
Thornhill.	1	Morton, Closeburn, Durisdeer.
Ruthwell.	1	Ruthwell Parish.
Dalton and Mouswald.	1	Dalton and Mouswald and parts of Dryfesdale and Lochmaben.
Annan.	1	Annan Burgh and radius of 3 miles.
Sanquhar and Kirkconnel.	2	Sanquhar Parish and Kirkconnel Parish.
Dunscore.	1	Dunscore and Holywood Parishes.
Lockerbie and District.	2	Dryfesdale (including Lockerbie Burgh), St. Mungo, Tundergarth, Hutton and Corrie, and Applegarth.
Lochmaben.	1	Lochmaben Parish and Burgh of Lochmaben.
Kirkmichael and Garrell.	1	Kirkmichael.
Lower Annandale.	3	Dornock, Gretna, Kirkpatrick-Fleming, Half-Morton.
Canonbie.	1	Canonbie Parish.
Penpont.	1	Penpont, Keir, and Tynron Parishes.
Moffat.	2	Moffat and Kirkpatrick-Juxta.
Kirkmahoe.	1	Kirkmahoe Parish.

Attempts have been made for some time to get nursing associations started in the few parts of the County which, so far, are unprovided. It is hoped that this may be accomplished soon in most cases.

The institutional treatment of the sick poor is at Notwen and at Rowantree House, situated at Kirkpatrick-Fleming and at Gatelawbridge, Thornhill, respectively.

A copy of my first annual report on those institutions as Chief Public Assistance Officer is appended :—

NOTWEN HOUSE.

Accommodation.—This Poorhouse has accommodation for 56 cases, and at the date of this report the inmates numbered 32. The accommodation is ample and satisfactory. The inmates are classified as ordinary, infirm, and sick, and the sexes are effectively separated. The inmates are examined and classified by the Medical Officer of the Poorhouse quarterly.

Staff.—The staff consists of the Governor, Matron, 2 servants, laundress (1 day per week), Medical Officer, and Chaplain, and is adequate. There has been no change in the number of the staff during the year.

Nursing.—There is no trained nurse, the nursing being done by the Matron, assisted by certain suitable inmates. This has proved satisfactory in the past, but owing to an increase in the number of bed-cases arrangements have been made to provide additional temporary assistance for the Matron. The Medical Officer of the Poorhouse expresses himself as entirely satisfied with the manner in which the Matron performs her duties.

Dietary.—The food provided has been of good quality, ample quantity, and well cooked. The sick are dieted as directed in writing by the Medical Officer, and the other inmates are fed according to appetite. This method is found to be satisfactory, and generally there are no complaints.

Discipline.—Discipline has been satisfactorily maintained, and no punishment was inflicted.

Employment.—The inmates are employed as far as possible according to ability. The work of the men consists of ward-keeping, cleaning, sewing, mending, garden work, sawing, splitting, and bundling firewood. The women are employed ward-keeping, sewing, mending, knitting, and other housework. No changes in this respect are meantime suggested.

Children.—Apart from children admitted along with mothers into the casual ward for a night's shelter, there are very seldom any children in the house, and when cases are admitted they are, except in special circumstances, boarded out as soon as possible. There is no separate accommodation for children. There is at present only one child on the register. This child was born in the house about a year ago, and is still there with its mother. The extremely small number of children in the house at any time does not warrant the employment of a paid official to take charge of them or the provision of special accommodation.

Bathing.—There is a plentiful supply of hot and cold water. The ordinary inmates are bathed weekly, and there is a sufficient number of baths. In the case of the males the bathing is supervised by the Governor, and in the case of the females by the Matron. The bathing of the sick is done subject to the Medical Officer's instructions.

Clothing. Clean outside clothing is given when required, and clean underclothing and pocket handkerchiefs are supplied fortnightly. A sufficient supply of clean towels is placed in each lavatory once a week, and on bathing day a clean towel is given to each inmate.

Alterations.—The only structural alterations during the year has been in connection with the septic tank and there has been no alteration in the authorised use of any part of the Poorhouse.

Repairs.—The buildings are at present in good con-

Improvements.—There are no suggestions for the improvement of the buildings and administration for present consideration.

Casual Ward.—The number of casual admissions during the year was 2018, a decrease of 376 on the previous year. Able-bodied men are asked to saw wood in the morning before leaving. Since this change was introduced the number of admissions has shown a slight decrease.

Medicine.—The supply of medicines and appliances is sufficient. These are ordered as required and dispensed by the Medical Officer of the Poorhouse.

Sick Ward.—There are 5 sick wards—3 male and 2 female. Hot and cold water is available in adjoining bath-rooms. The sick rooms are supplied with screens, bed-rests, chairs, and other requisites, which are ample for requirements.

Heating.—The wards are heated by open fires, by which the necessary temperature can be obtained, and ventilation is effected by windows. These arrangements are satisfactory.

Sanitation.—The sanitary arrangements are in good order.

Isolation Wards.—There are two rooms on the male side and one on the female side suitable for the treatment of tuberculosis and infectious or offensive cases generally.

Venereal Diseases.—There have been no cases of syphilis and gonorrhœa during the year.

Operative Cases.—Patients suffering from maladies which require operative measures are sent to the general hospital.

Cancer.—Cases of cancer are treated in one of the isolation rooms.

Obstetric Cases.—Any supposed case of pregnancy is examined on admission and put under suitable treatment as required. Parturition is attended to by the Medical Officer, and nitrate of silver is instilled into the eyes of newly-born infants in all cases.

ROWANTREE HOUSE.

Accommodation.—This Poorhouse has accommodation for 62 cases, and at the date of this report the inmates numbered 56. 36 of these cases were boarded in the Poorhouse by Glasgow Corporation, the remainder being cases belonging to this County. The accommodation, generally fully occupied, has proved sufficient for requirements during the year. The inmates are classified as ordinary, infirm, and sick. The sexes are effectively separated, the male and female wards being independent of each other. The inmates are examined and classified by the Medical Officer of the Poorhouse.

Staff.—The staff consists of Governor, Matron, 4 maids, Medical Officer, and Chaplain. The staff has been adequate, and there has been no change in the number during the year.

Nursing.—The Matron is a certified nurse, and is assisted by members of her staff. The duties have been satisfactorily undertaken throughout the year.

Dietary.—The food provided has been of good quality, and the cooking is supervised by the Matron. The sick are dieted by direction of the Medical Officer, and the other inmates are fed according to appetite. There have been no complaints during the year.

Discipline.—The discipline of the inmates has been very good. There was one case of misbehaviour, and the man concerned, who was boarded by Glasgow Corporation, was, with the sanction of the Medical Officer, returned to Glasgow by the Governor.

Employment.—The work done by the inmates is of a light nature, and consists chiefly of gardening, chopping wood, and assisting with the general cleaning of the Institution.

Children.—There are at present no children in the are in the House they are educated at Gatelawbridge School, which adjoins the Institution.

Bathing.—The supply of hot and cold water is ample throughout the House, and the number of baths is sufficient. Cases in the sick wards are bathed by the Matron, and the ordinary inmates are bathed weekly under the supervision of the Governor and Matron.

Clothing.—Outside clothing is changed when required, and underclothing is changed fortnightly or more frequently if necessary. Handkerchiefs and towels are changed weekly.

Alterations.—There have been no structural alterations during the year.

Repairs.—The buildings are at present in good condition. During the year woodwork of both sick wards and dining-hall received two coats of paint, some of the outside walls were cement-washed, and all the ceilings were white-washed, the work being done by the inmates.

Improvements.—There are no suggestions for the improvement of the buildings and administration for present consideration.

Casual Ward.—There is no casual ward in connection with this Institution.

Medicine.—Medicine and appliances are supplied as required by the Medical Officer of the Poorhouse.

Sick Ward.—There are two sick wards—one male and one female. The wards are supplied with screens, bed-rests, chairs, and other requisites, and the accommodation is sufficient.

Heating.—The wards are adequately heated by open fires, and ventilation is effected by the windows and is satisfactory.

Sanitation.—The sanitary arrangements are in good order.

Isolation Ward.—There is no isolation ward, but provision is made for the isolation of offensive cases. Tuberculous cases can be isolated temporarily pending admission to the Sanatorium.

Venereal Diseases.—There is no special provision for the treatment of syphilis and gonorrhoea.

Operative Cases.—Patients suffering from maladies which require operative measures are sent to the general hospital.

Cancer.—There is no special provision for the treatment of cases of cancer.

Obstetric Cases.—Obstetric cases receive prenatal attention if admitted in time, and measures are taken for the prevention of ophthalmia.

Q. VENEREAL DISEASES.

Dr W. S. I. Robertson reports on the cases of Venereal Disease treated at Kirkbank Clinique:—

During the year 72 new patients attended at Kirkbank. Of these 21 were Syphilis (12 Male, 9 Female), 28 Gonorrhoea (33 Male, 5 Female), 1 (Male) suffered from both diseases and 1 (Male) from Chancroid. 11 (5 Male, 6 Female) were found to be non-venereal.

Thirty-seven former patients continued treatment, making a total of 109.

Of the cases of Syphilis treated during the year 14 (5 Male, 9 Female) were congenital.

Attendances on the official clinic days totalled 1028.

The age-incidence of patients treated was as follows—the ages ranging from 6 to 61 :

	Syphilis.		Gonorrhoea.		Chancroid.		Mixed Infection.		Total
Age.	M.	F.	M.	F	M.	F.	M.	F.	
Under 1							...		
1 and under 5									..
5 and under 15	3	3							6
15 and under 25	4	6	19	3	1				33
25 and over	22	8	24	4			1		59
Total	29	17	43	7	1		1		98

The arsenical preparations, *e.g.*, Neokharsivan and Kharsulphan, for intravenous and intramuscular injection respectively, continue to be the main line of treatment as regards Syphilis. Along with these Bismuth, Mercury, and Iodides are used. The first-named is also of value in cases where arsenical drugs are not well tolerated, and in juvenile congenital cases where veins may be difficult. Two cases developed an arsenical dermatitis, which cleared up with injections of Sodium Thiosulphate intravenously, and Sulphur by the mouth.

For Gonorrhea local antiseptic treatment and vaccines, along with alkaline medication, still continue to show the best results.

Attendance has been satisfactory, and in cases where for various reasons patients were obliged to go to other localities they have been referred to the local clinic or, failing that, have been instructed to place themselves under medical supervision.

Lack of powers to deal with the source of infection is still a handicap in dealing with venereal disease, but the problem is admittedly one of considerable difficulty and delicacy, especially where domestic relations may be involved.

Eighty-one Wassermann tests and 149 examinations for Gonococci were carried out in connection with the clinic.

I have again to thank Mr Lees, Surgeon in charge of the Venereal Department, Edinburgh Royal Infirmary, for his readiness to admit patients who required treatment beyond the scope of an out-patient clinic.

B. TUBERCULOSIS.

The total number of notifications of Tuberculosis from the County Landward and Small Burghs was 134.

The statistics of notification from 1914 onwards is shewn in the following table ;

Year.	Total notifications.	Pulmonary.	Non-pulmonary.	Rate per 1000.
1914	... 131	83·2%	16·8%	2·4
1915	 134	66·4%	33·6%	2·5
1916	 198	71·7%	28·3%	3·4
1917	 171	68·4%	31·6%	2·6
1918	 157	74·5%	25·5%	2·4
1919	.. 139	68·3%	31·7%	2·3
1920	 127	74·0%	26·0%	2·2
1921	 138	70·0%	30·0%	2·3
1922	. 118	68·6%	31·4%	2·0
1923	 134	63·4%	36·6%	2·3
1924	 151	58·9%	41·1%	2·5
1925	 156	70·0%	30·0%	2·6
1926	 140	50·0%	50·0%	2·5
1927	... 138	60·1%	39·9%	2·3
1928	 146	66·4%	33·6%	2·4
1929	 148	54·7%	45·3%	2·5
1930	 134	56·0%	44·0%	2·3

The death-rate from all forms of Tuberculosis was 0·699 per 1000 (Pulmonary 0·543. Non-pulmonary 0·209). This is a fraction below that of the previous year, which was the lowest on record for the area.

The fall of the death-rate from Tuberculosis since 1891 is shewn in the following table :—

	Pulmonary.	Non-pulmonary.	Total.
1891-1910 (mean) ..	1·647	0·692	2·339
1911-1920 (mean)	1·028	0·353	1·381
1921	0·839	0·117	0·956
1922	0·859	0·214	1·073
1923	0·910	0·240	1·150
1924	0·699	0·290	0·989
1925	0·921	0·301	1·222
1926	0·693	0·270	0·963
1927	0·722	0·387	1·109
1928	0·828	0·236	1·064
1929	0·510	0·209	0·719
1930	0·543	0·156	0·699

Dr W. S. I. Robertson reports as follows:—

During the year ending 31st December, 1930, 134 notifications were made to this department. One case suspected of Hip-joint Disease was found on X-ray examination to be due to Osteo-Arthritis, leaving a total of 133. Of these, 75 were Pulmonary (37 male, 38 female) and 58 Non-pulmonary (23 male, 35 female).

The Non-pulmonary cases were as follows:—

Superficial Gland	29
Bones and Joints	11
Abdomen	10
Lupus	3
Spine	2
Meninges	1
Other Parts or Organs	2
	58

Age Incidence.

	Under 1	1 and under 5	5 and under 15	15 and under 25	25 and under 35	35 and under 45	45 and under 65	65 and over	Total
Pulmonary.									
Male	1	1	1	11	8	7	6	2	37
Female	.....	.....	4	10	9	4	8	3	38
Non-pulmonary.									
Male	...	3	7	8	–	1	3	1	23
Female	2	1	16	10	1	3	1	1	35
Total	3	5	28	39	18	15	18	7	133

The distribution among the County Districts (1930) and Burghs (excluding Dumfries Burgh) was as follows:

District.	Pulmonary. M.	Pulmonary. F.	Non-pulmonary. M.	Non-pulmonary. F.	Total.
Dumfries 1		3	6	6	15
Dumfries 2	6	7	5	4	22
Thornhill	8	4	4	3	19
Sanquhar	6	1	1	7	15
Sanquhar Burgh	—	—	—	—	—
Annan	4	5		4	13
Annan Burgh	3	3	1	2	9
Gretna	1	2	2	5	10
Lockerbie	1	2	3		6
Lockerbie Burgh		2			2
Moffat	3	..			3
Moffat Burgh	3	3			6
Langholm	1	2			3
Langholm Burgh	1	3		3	7
Lochmaben Burgh		1	1	1	3
Total	37	38	23	35	133

Quarterly Incidence.

	Pulmonary.	Non-pulmonary.	Total.
1st Quarter	23	17	40
2nd Quarter	26	21	47
3rd Quarter	12	10	22
4th Quarter	14	10	24
Total	75	58	133

Occupation.

The patients notified were employed as follows:—

Domestic Duties	37
Farm Work	11
Miner	5
Shepherd, Labourer, Shop Assistant—each	4
Millworker, Railway Worker	3
Hospital Nurse, Mason, Groom, Policeman	2
Barman, Banker, Dressmaker, Typist, Stationer, Quarryman, Sailor, Tailor, Butcher, Waitress, Plumber, Factory Manager—each	1
Children of School Age	24
No occupation	18

Disposal of Cases (Institutional Treatment).

Admitted to Lochmaben Sanatorium	44
Inmates of C.R.I.	7
Dumfries and Galloway Royal Infirmary	23
Royal Infirmary, Edinburgh	1
Sanatorium or Hospital previous to residence in County	5

Nineteen patients are occupying shelters, and 59 have received medical comforts during the year.

8. MATERNITY AND CHILD WELFARE AND SCHOOL HEALTH SCHEMES.

(a) Maternity and Child Welfare.

MIDWIVES (SCOTLAND) ACT, 1915, AND MIDWIVES AND MATERNITY HOMES (SCOTLAND) ACT, 1927.

Notice of intention to practise within the County Area (including the Burghs of Annan, Sanquhar, Lochmaben, Moffat, Lockerbie, and Langholm), as required by Section 18 of the principal Act, was given by 15 midwives. They were :—

(1) Mary Waugh, Throughgate, Dunscore.
(2) Jean Armstrong, 102 High Street, Dumfries.
(3) Doris Lilian Berry, Nethermill, Parkgate.
(4) Carina Gilruth, Johnstone Park, Dumfries.
(5) Mary Melbourne, 39 Irish Street, Dumfries.
(6) Rachel Porteous, 8 Crathie Avenue, Dumfries.
(7) Jean K. F. Rennie, 16 Martin Avenue, Dumfries.
(8) Catherine Bruce, Alexandra Cottage, Kirkpatrick-Fleming.
(9) Sarah Houston, 11 The Rand, Eastriggs.
(10) Margaret Smith, 15 Victory Avenue, Gretna.
(11) Helen Rae Murdison, 20 High Street, Lochmaben.
(12) Marguerite H. Chisholm, 4 Nelson Street, Maxwelltown, Dumfries.
(13) Mary Theresa M'Kinney, Alexandra Cottage, Kirkpatrick-Fleming.
(14) Helen M. Blackwood, c/o Struthers, 11 The Rand, Eastriggs.
(15) Sarah Ferguson, F West 1, Gretna.

The number of notified births attended by midwives was 47. One death of an infant within 10 days of birth occurred in a midwife's practice, out of a total of 14 such deaths.

One still-birth occurred in a midwife's practice, out of a total of 41 still-births.

No cases of Ophthalmia Neonatorum were reported by midwives, out of a total of 9 in the whole area.

No cases of Puerperal Sepsis were reported among women attended by midwives.

Medical aid was summoned by midwives in 15 cases, in accordance with the provisions of Section 22 of the Midwives (Scotland) Act, 1915. Those emergencies were :—

In respect of Mothers.	
Uterine Hæmorrhage ...	2
Lacerated Perineum ...	2
Syncope	1
Short Cord and Uterine Prolapse	1
Delayed Labour ...	4
Abscess	1
Placenta Prævia ...	1
Eclampsia	1
Total	13

In respect of Infants.	
Inflammation of Eye ...	1
Discharge from Eyes	1
Total ...	2

Maternity Homes.—None is registered within the area.

NOTIFICATION OF BIRTHS ACTS, 1907-1915.

The total number of births notified from the County Landward and the Burghs of Annan, Sanquhar, Lochmaben, Lockerbie, Moffat, and Langholm was 1032. This includes 41 still-births, which are notifiable, though not registered.

The details of notification were :—

By Medical Practitioners	860
By Midwives	47
By Health Visitors and District Nurses	46
By Parents	77
By Other Persons	2
Total	1032

In addition 100 transfers were received from other areas regarding infants of less than 1 year and 88 transfers regarding children of 1 to 5 years.

The total number of infants under 1 year and children from 1 to 5 years brought to the attention of the Public Health Office during 1939 is thus 1220.

Visitation and Supervision.—The number of visits and revisits made by Health Visitors and District Nurses during the year was 19,399, which is an increase of 1799 on the previous year. The details were :—

	First Visits.	Revisits.	Totals.
By Health Visitors	165	2,344	2,509
By District Nurses	804	16,086	16,890
Total	969	18,430	19,399

61·45 per cent. of the infants visited were wholly breast-fed.
2·8 per cent. of the infants visited were partly breast-fed.
35·75 per cent. of the infants visited were artificially fed.

The chief pathological conditions noted were :—

A. Amongst Infants.

Ophthalmia Neonatorum	9
Other Eye Conditions	17
Congenital Defects	4
Cutaneous Conditions	13
Tuberculosis	3
Pneumonia	2
Other Infectious Diseases	60
Other Conditions	74

B. *Amongst Mothers.*

Puerperal Fever	6
Puerperal Pyrexia	12
Enteric Fever	3
Other Infectious Diseases	1
Oral Sepsis	15
Phlegmasia Alba Dolens	3
Mastitis	2
Other Conditions	33

Medical Comforts were supplied to Expectant or Nursing Mothers, to Infants, and to Children under five in 111 cases.

(b) School Health Schemes.

The report for the year ending 31st July, 1935, has been published in separate form.

T. MILK AND DAIRIES (SCOTLAND) ACTS.

(1) Bacteriological examination of milk samples is conducted in the Council's Laboratory, County Buildings, Dumfries (see report, page 89).

(2) No appreciable quantity of milk is consigned from other areas to the County.

Any complaint from another authority regarding dirty milk supplied from the County is promptly dealt with, the premises visited, methods scrutinised, and samples taken. This is repeated if necessary until the fault has been discovered and, if possible, remedied.

Samples are taken by the Veterinary Inspectors in the course of their routine visits whenever circumstances point to the desirability of doing so. Samples are also frequently taken at the various creameries, where milk from a number of consigners can be got at one time.

(3) No outbreak of infectious disease during the current year was traceable to milk.

(4) There are thirteen producers and one retailer in the County licensed to sell graded milk under the Milk (Special Designations) Order, as well as one Creamery with a licence to sell pasteurised milk. Of those fifteen licensees, 3 were licensed in 1924, 5 in 1926, 3 in 1927, 2 in 1928, and 1 each in 1929 and 1930.

VETERINARY INSPECTORS.

Messrs Davidson and Sangster report as follows:—

MILK AND DAIRIES (SCOTLAND) ACT, 1914.

There was no matter of outstanding interest during the past year, except the large increase in the number of premises which now conform to the Bye-Laws.

Our observations during the past year prompt us to state that much more interest is being displayed by farmers in the maintenance of healthy dairy herds and the production of clean milk.

VETERINARY INSPECTION OF HERDS.

Further increases in other duties again made the completion of the statutory [illegible] very difficult, but it can be stated that during 1930 more visits were paid to premises than in any previous year. As formerly we have inspected "exempted or [illegible] premises" only when we visited for other duties.

1.—*Visits to Premises.*

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Routine	213	194	[illegible]	128	26	760	[illegible]
Other Duties (Plans, &c. ...	8	13	[illegible]	35	13	115	170
Total	221	207	215	163	39	875	609

The above table shows the distribution and the classification of these visits and the large increase in the routine visits over previous years is noteworthy. It may be noted that, towards the end of the year, owing to the "open" weather it was found very difficult to get the cows in the byres, and this made herd inspection awkward.

The general condition and cleanliness of the cattle has been good, and more grooming and clipping of tails and udders have been carried out than in previous years. The advantage of byres constructed on practical lines is more in evidence, owing to the large number which have been reconstructed.

It has been some years since the hay crop was so badly secured, and no doubt the general condition of the cows has suffered to a certain extent; but the more marked feature is the presence of "sporebearing" organisms in milk samples, owing to contamination from dusty fodder. If the proper precautions are taken this can be eliminated very easily, but once the bacteria have infected the utensils it is very difficult to get them properly sterilised again, unless there is a steam plant on the farm. The action of this type of organism on the milk is apparently slow, and therefore no bad effects are noticed unless milk is stored for 12-24 hours longer than is customary and at a temperature suitable for their development.

2.—Milk Samples submitted for Examination.

(i) Bacteriological.

Tuberculosis.				Pathogenic Organisms.		B. Count and Coli.	Total.
Microscopical.		Biological.		Not. Tuberculosis.			
Pos.	Neg.	Pos.	Neg.	Pos.	Neg.		
11	121	3	19	153	91	51	449

(ii) Chemical.

Butter Fat and Solids.	Acidity.	Acetone.		Total.
		Pos.	Neg.	
36	2	16	3	57

Table No. 2 again shows a further increase in the number of samples taken from cases of non-tuberculous mastitis, and there is no doubt that this disease, especially in the chronic form, is on the increase. Evidence would show that it interfered seriously with cheese-making at certain farms during the past season. We instituted recently more frequent examinations for Actinomycosis in samples of milk from indurated udders, which closely resemble Tuberculosis. Apparently the disease is much more common than what is thought generally, but with proper treatment it would appear possible to effect cures in cases not too far advanced.

Cases of Post Parturient Dyspepsia are becoming very common, probably as a result of defective feeding and forced milk yields. A number of samples have been tested for the presence of Acetone, and the majority were positive. In such cases we have advised the owner to have the animal treated by his private Veterinary Surgeon, and stopped the sale of the milk until the Acetone has disappeared. Other diseases such as Retention of the Placenta and "Liver Fluke" appear much the same as usual.

Contagious Abortion is probably the most serious disease prevailing at present in dairy herds. Farmers appear to be making much more use of live vaccines amongst their heifers, but, though the number of abortions may be thus decreased in any particular place, this method keeps the infection alive, and, before using it, farmers should satisfy themselves thoroughly that abortions occurring on their premises are due really to the "Bacillus of Bang."

Milk from diseased cows has been dealt with as in the past, and on the whole farmers are paying more attention to this important factor and taking proper precautions before the time of our visit.

A notification was received during September from the Medical Officer of Health for the County that an outbreak of Typhoid had occurred in an area of the County. The evidence indicated that the infection was water borne, but all the dairies in this district were visited during the course of the next week and a thorough examination made of the premises and cows. When visiting, detailed instructions were given to the dairymen as to the best methods of ensuring that the milk supplies would not be contaminated. We found it advisable, however, to put these verbal instructions into a circular for distribution at the farms, so that employers and employees could refer to it when necessary. In addition to the dairies supplying the local requirements, there were five farms sending milk outside the County. Arrangements were made immediately for all of this milk to be sent direct to two Creameries to be "pasteurised" on arrival and before being distributed, instructions being given that each producer's milk churns would be returned direct to the farms. It is interesting to note that no cases of Typhoid, within or outside the County, were traced to the milk produced in this area during the outbreak.

TUBERCULOSIS.

3.—*Extract from Returns under Tuberculosis Order of* 1925.

Reports made on Animals on Registered Premises.

	Premises producing Milk, etc.	Premises producing Butter, etc.	Total	Total 1929.
Reports received and examined	263	26	289	315
Cows confirmed and slaughtered	150	15	165	170
Cows found at "Post-mortem" to be :—				
(a) Advanced T.B.	61	7	68	80
(b) Not Advanced T.B. ...	89	7	96	90
Contained cases reported by County Veterinary Inspectors	82	5	87	81

The above figures show that the position as regards Tuberculosis is much the same as for 1929, though the percentage of "not advanced" cases slaughtered has increased again, and thus still more animals are being diagnosed before the disease has advanced sufficiently to spread gross infection for lengthy periods. Reports from owners are similar to last year, and we are sure that we could receive much more co-operation and assistance from this source. Our observations during the past year would lead us to believe that the slaughter of affected animals is having a marked effect on some herds which were badly infected when the Tuberculosis Order of 1925 came into operation. There were premises then which we could visit once or twice annually and find one or more animals to which the Order applied. Now, however, we can visit frequently without observing anything unusual. We have, of course, always given advice in the handling of herds so as to eliminate infection, and probably this has had as much effect as the actual slaughter of affected animals, as now the healthier stock bred during the past few years are being added to the herds.

No use has been made of the power to test under Section 22 of the Act. We have had reports from importing Local Authorities with reference to the presence of Bovine Tuberculosis in milk consigned to their areas, but no request to take samples under Section 21. It has been always possible to find the affected animals and samples of bulk milk taken after the slaughter of the suspected cows have proved negative to the biological test.

The position as regards Sections 12 and 13 of the Act is much the same as last year, and owners should make more reports in this connection. However, it will be observed that the number of samples taken for pathogenic organisms, not tuberculous, show an increase over previous years.

INSPECTION OF REGISTERED DAIRIES.

1.—*Registered Premises and Number of Cows.*

(i) Registration Completed.

District.	Premises.					
	Class 1	Class 2	Class 3	Class 4	Total	Cows.
Thornhill	23	103	113	24	263	5,226
Dumfries...	16	77	47	22	162	4,370
Annan	46	90	84	9	229	1571
Lockerbie	36	62	76	...	174	2615
Langholm	2	14	81	...	97	570
Total	123	346	401	55	925	14,352

(ii) Premises reported on but not yet registered.

Total	...	...	...	...	102	1,020
Grand Total ...	...	...	...	...	1,027	15,372

As previously noted, there has been a large increase in the number of premises which conform to the Bye-Laws, and there are other premises which have effected a certain number of improvements, the remainder to be done at some future date. The most of this work has been undertaken voluntarily, either by the landlords or the tenants, and it was only in a few cases that it was found necessary to compel the registered occupier to carry out improvements. Striking examples of the results of practical reconstruction have been noted at certain premises, where one byre has been reconstructed and the other left with the existing fittings, as the improvement in the appearance of the cows was observed very easily.

Still more waterbowls are being installed every year, and there is a definite increase in the number of steam pressure boilers and plants being used. It is now possible to purchase a small boiler at a comparatively low cost, and, as the fuel used is negligible, farmers are finding that they repay amply the purchase price in cash and saving of labour.

Articles 5 to 16 of the Milk and Dairies (Scotland) Order, 1925, are being complied with reasonably well, but it is still necessary to draw the attention of dairymen to the fact that their churns are not sealed before being handed over to a public carrier.

The position might be reviewed by saying that there has been on the whole a general improvement in the cleanliness of the cows, premises, etc., and much more attention is now being paid to methods of production.

MILK (SPECIAL DESIGNATIONS) ORDER (SCOTLAND), 1923.

5.—(a) *Numbers of Licences, Visits, Samples, and Tests.*

Class of Licence.				Milk Samples.				Tuberculin Tests.				
Certified.	Grade "A" (T.T.)	Pasteurised.	Retail	Visits.	Bact.	Chem.	Total.	Herds, One Test	Herds, Two Tests	Routine Tests.	Interim Tests	Total.
2	11	1	1	439	183	171	354	1	12	1475	93	1568

(b) *Tubercle Free Herds.*

(i) Certified.

Name and Address of Dairy.	Average Number of Herd.	Estimated Gallons per Annum.
R. Dickie, Knockenjig, Kirkconnel ...	44	
W. Thomson, Dalpeddar, Sanquhar ...	28	
Total	72	[illegible]

(ii) Grade "A" (T.T.).

Name and Address of Dairy.	Average Number of Herd.	Estimated Gallons per Annum.
A. Kirkpatrick, Barr, Sanquhar	62	
M. Sloan, Hunterhouse, Lochmaben ...	27	
J. Borthwick, Blackford, Lockerbie ...	33	
D. Kirkpatrick, Auchenbainzie, Penpont	61	
Wm. Brown, Drumcork, Thornhill ...	48	
J. Jamieson, Roundbush, Dornock ...	[illegible]	
D. Jamieson, Swordwellrigg, Dornock ...	24	
J. S. Laidlaw, Glengar, Penpont ...	45	
Messrs Wyllie, Kinmount, Cummertrees	[illegible]	
Messrs Halliday, Gillesbierigg, Borchard	[illegible]	
R. Millar, Shawsholm, Closeburn ..	[illegible]	
Total	[illegible]	[illegible]

(iii) Not Licensed.

Name and Address of Dairy.	Average Number of Herd.	Estimated Gallons per Annum.
Five (5)	165	[illegible]
Grand Total	731	[illegible]

There is no material alteration in the production of milk under the above Order.

Two herds having been sold during 1929 the Grade A (T.T.) licences relapsed, and one new licence has been granted. The number of samples taken, and the Tuberculin Tests completed, have increased. During the past year three of the licensed herds were threatened with extensive outbreaks of Mammitis, but the outbreaks were cut short and cleared up in a comparatively short time, owing to the fact that the disease was reported promptly and our instructions with regard to Hygiene etc. carried out carefully. There is no doubt that in ordinary herds, where inspections are made only at long intervals, similar outbreaks would have resulted in prolonged infection of the majority of the cows.

There has been no particular change in the marketing of this class of milk, and, though there has been an increase in sales, particularly in Burghs within the County, production still exceeds the demand.

Our remarks in the report for 1929 with regard to the standards for Bacterial Count and Bacillus Coli, and the classification of the various "Grades," can be applied to the past year, particularly with reference to the former. More and more milk from ordinary farms is being produced within the limits permissable for the "Graded" varieties.

The prescribed Tuberculin Tests have been carried out during the year, and the position of the herds with regard to reactors is becoming more satisfactory. Years of careful observation by Veterinary Surgeons carrying out these tests have elucidated many of the factors responsible for the infection of animals. Unfortunately owners have been slow to accept advice based on these facts, so that often results have been unsatisfactory. The last two years, however, have shown a marked improvement in this respect, and they are now taking much more stringent measures for the protection of their herds.

MEAT (SCOTLAND) REGULATIONS. 1924.

(a) *Numbers of Slaughter-houses and Visits made for Routine Meat Inspection, and Emergency Slaughter Reports.*

	Thornhill.	Dumfries.	Annan.	Lockerbie.	Langholm.	Total.
Slaughter-houses, etc.	2	1	2	1	1	7
Visits	287	6	85	3	3	384

(b) *Carcases and Offal Condemned (Routine and Emergency).*

Disease.	Bovines except Calves.									Calves.				Pigs.							Sheep.					
								Weight. Lbs.				Weight. Lbs.							Weight. Lbs.						Weight. Lbs.	
	Carcases.	Quarters.	Beef—Lbs.	Heads.	Lungs.	Liver.	Other Offal.	Carcase.	Offal.	Carcases.	Liver.	Carcase.	Offal.	Carcases.	Pork—Lbs.	Heads.	Liver.	Other Offal.	Carcase.	Offal.	Carcases.	Mutton—Lbs.	Liver.	Other Offal.	Carcase.	Offal.
T.B. Order	20	10	112	19	56	40	150	912	2549	2	...	78	8	...	...	...	...	...	...	...	...	...	...	...	...	...
T.B. Routine	9	27	[illegible]	33	14	11	141	6418	1882	...	...	...	...	...	56	5	4	54	56	801	...	...	...	...	...	...
Pericarditis, Pneumonia, Pleurisy ...	1	...	[illegible]	1	2	1	6	102	61	1	...	98	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Imperfect Bleeding, etc.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Decomposition, etc.	...	...	...	1	3	19	...	...	[illegible]	...	...	...	...	2	...	...	2	2	190	92	...	1	1	1	30	15
Injury, Tumours, etc.	1	3	[illegible]	[illegible]	[illegible]	...	[illegible]	[illegible]	[illegible]	...	...	...	...	...	...	...	1	...	...	7	...	...	124	...	...	327
Septicaemia, Sepsis, Peritonitis, etc. ...	2	[illegible]	[illegible]	[illegible]	3	5	10	930	136	...	...	...	2	...	...	...	...	...	...	...	...	16	1	1	.	5
Total	33	52	1171	97	107	279	135	18438	6024	3	...	176	10	2	56	5	7	56	246	900	...	17	126	2	30	347

MEAT (SCOTLAND) REGULATIONS, 1924.

The number of visits made under the above Regulations have decreased since last year, but this has occurred in the Thornhill District, those for the other districts having increased. Thornhill abattoir was opened during May of this year, with the result that three private slaughter-houses were closed, and, though numerically fewer visits are made, more meat is inspected. We stated in the report for 1929 that increased inspection had resulted in the seizure of more offal, the most of which was not apparently diseased and had not been observed by butchers. We anticipated that the opening of the abattoir would still further increase this class of condemnation, and this year's results have confirmed this, as it will be seen that, though the numbers of carcases and quarters condemned have more or less remained the same, there is a decided increase in the amount of parts of carcases, heads, lungs, livers, etc., condemned in each class of animal slaughtered.

It may be stated that during the last year meat inspection within the County area has reached a standard far in advance of that carried out previously, and is probably the best that can be expected under existing arrangements.

The bulk of the meat is condemned owing to Tuberculosis, and fifty per cent. of this is from cattle salvaged under the Tuberculosis Order of 1925. Previous to this Order coming into operation this class of carcase would probably have reached markets in various parts of the County, where meat inspection was only indifferently carried out.

We would again reiterate the final paragraph of last year's report where it was stated that "the increase in the amount of meat, etc., condemned during the past year should not be taken as an indication of more diseased meat within the County, but rather considered the result of a more intensive inspection of a larger number of carcases throughout the year."

FRANCIS A. DAVIDSON.
GEO. A. SANGSTER.

OTHER SANITARY WORK.

Common Lodging-houses.—Those are situated, so far as the County Landward is concerned, at Kirkconnel, Thornhill, and Ecclefechan. Seven visits were paid to those by the County Sanitary Inspectors, in addition to frequent visits by the Local Government Officers, and due intimation was sent regarding matters requiring attention.

Burial Grounds.—So far no comprehensive survey of the burial grounds, formerly administered by Parish Councils, has been made. In several instances where such a course seemed desirable, special visits have been paid and appropriate representations made.

SMALL BURGHS.

The following excerpts from the reports of the Sanitary Inspectors of the Small Burghs deal with those Public Health Services which were not transferred by the Local Government Act of 1929 :—

BURGH OF ANNAN.

Mr Irving reports :—

"Water Supply.—The water supply during the past year has been ample and of good quality. On 25th September, however, we experienced an abnormal rainfall in the area of the Reservoir and Middlebie Districts. The floods overflowed the banks of the reservoir, causing considerable damage to the banks on the north and north-west sides and carrying down a huge amount of earth, silt, and objectionable matter from the arable land on the north side and from the hilly pasture land on the west side, forming a deposit in the bed of the reservoir to a depth of four inches. This was at once reported to my Committee. They visited and inspected the reservoir (the water being lowered for that purpose), and instructions were given to have the place cleaned out, and forthwith the work was commenced. The banks of the reservoir were made good and heightened in parts by four feet. This work was carried out under my personal supervision by ex-service men at a cost of £245 12s 7½d. The Convener and members of his Committee who visited the place frequently during these operations expressed themselves as satisfied with the work when finished.

After cleaning out the reservoir I had the filter beds at Landheads cleaned and all pipes scoured twice, with an interval of eight days. On 28th January, 1931, I sent a sample of water to the city analyst of Liverpool (W. G. Roberts, M.S.C., F.S.C.) and to the Bacteriologist (Professor Beattie, M.A., M.D.) of the Liverpool University, and herewith submit their reports :

"Analyst's Report.

The following results expressed in parts per 100,000.

Mark and denomination of the sample.	[illegible] Town Council Water Supply for Domestic Purposes
Total solid matter in solution	6·72
Oxygen required to oxidize in 15″	0·165
Oxygen required to oxidize in 3 hours	0·200
Ammonia ...	0·001
Ammonia from Organic matter by distillation with Alkaline Permanganate	0·012
Nitrogen as Nitrates	trace
Nitrogen as Nitrites....	none
Combined Chlorine	0·80

Reaction to Litmus-Alkaline.

The water was clear, faintly yellow, and odourless. It was practically free from suspended matters, the minute trace present consisting of silicious particles, with a few diatoms and infusoria."

"Bacteriologist's Report.

Sample taken from pipe leading from filter to the storage.

B. Coli:—Absent in 100 c.cs.

Bacteria :—240 per 1 c.c.

No organisms of the typhoid-dysentery group found.

This water is very good, and quite satisfactory for human consumption."

This department of work has received special attention, as in former years, with a view to securing a supply to all parts of the town, and there have been no complaints for some considerable time now. A great many of the old connections to private supplies have been taken out and new connections substituted, which have effected a great improvement.

Drainage.—The sewers in the Town (the property of the Town Council) have been regularly attended to, and are in a clean and good working condition. I find that since the additional 120 houses have been built in the north side of the town the sewer pipe on the Silverwalk Road and Butt Street has shown a tendency to be overtaxed, and the manholes and gully traps overflow in a heavy rain by back-watering. The main sewer, which discharges into the river Annan below high water mark and where the tide overflows twice in over twenty-four hours, gives rise to no cause for complaints.

Scavenging.—The scavenging of the Town continues as in former years, the pails and boxes being collected during the forenoon. The work has increased greatly in recent years. Formerly one horse and cart with two men were able to overtake the work ; two horses and carts are now employed, and during the past year a total of 1796 loads of dry household refuse have been collected. This is taken to the Free Tip on the Back Merse and deposited in 3-ft. to 4-ft. layers (to prevent spontaneous combustion) and covered. We are continuing the building-up of the embankment on the west side along the banks of the river Annan and along the banks of the old mill lade on the east side to prevent the tide from washing away the refuse. This work is being carried out at intervals by ex-service men. The Free Tip is a source of great attraction to rats, and a constant war is being waged against them under the Rats and Mice (Destruction) Act, and the place is kept clear of these pests. Two additional sweepers have been employed to keep the streets clean and tidy, and this is giving satisfaction. This extra work (as will be understood) increases the expenditure in this department. There are no complaints of a nuisance from this area.

Nuisances.—The Town has been regularly and systematically inspected from time to time for the discovery of nuisances under Section 16 of the Public Health Act, 1897, and the health clauses of other Acts. Twenty-six nuisances were dealt with. On intimation being served on the authors under Section 19 of said Acts, these were removed and no further action was necessary.

In accordance with instruction contained in a circular by the Board of Health, dated 1st September, 1925, and the provision of Section 246 of the Burgh Police Act, 1892, I herewith report that the town has been on the water carriage system for many years, with the exception of a property of seven houses at the extreme east end of Scott Street, and to which it has not been found practicable to extend the main sewer, as the area is intersected by the L.M. & S. railway from Kirtlebridge, and where a privy midden with two seats for the seven houses exists. During the year under review 15 sinks and water supplies have been introduced to dwelling-houses, and there are yet 125 houses requiring the introduction of sinks and water supplies. There is 1 property with 1 outside w.c serving 2 families, 1 serving 5, 2 serving 8, 25 properties with 1 serving 3, and 11 with 1 serving 4. There is one privy midden as the fore-mentioned.

Another survey of the town will be made at an early date in accordance with the Circular No. viii., dated 1st September, 1925.

Factories and Workshops.—There are 77 factories and workshops in the town, as follows:—Two meal and grain mills, two steam laundries, and seventy-three workshops. These have been regularly visited, and always found in a clean and well-ventilated condition and no overcrowding noted.

Housing and Town Planning Acts.—Under these Acts and Housing Inspection of District Regulations Article V., and as officer designated to inspect, I have visited and inspected all the poorer and more insanitary houses in the town repeatedly, with the object of instructing the people to keep them clean, ventilated, and as comfortable as circumstances will allow. 120 New houses have been built on the north side of the town. We have a restricted list of 68 of the worst or lowest class of inhabited dwellings, which the Local Authority have further reduced to 24 of the lowest category with which to deal in the triennial period according to the Housing Act, 1930.

Public Slaughter-house.—The Public Slaughter-house (which is the property of the Town Council) has been regularly visited and always found in a clean and wholesome condition. The humane killer is exclusively used for the slaughtering of all animals, and the following animals were slaughtered during the years:—

	1930.	1929.	1928.
Cattle	552	531	477
Sheep	1357	1310	1525
Pigs	245	391	468
Calves	38	84	101

Offensive Trades.—The Fellmonger's or Skinnery in Port street is the only works which comes under the category of offensive trades in the Burgh. This place has been frequently visited and always found in a clean and satisfactory condition. No complaints have been made respecting this place.

Meat Inspection.—Besides the regular visits to the Slaughter-house, all shops and vans used for the sale or conveyance of meat for sale, or from which meat is sold, have been visited and inspected, and the following seizures were made:—

4 carcases—161 stones beef.
11 carcases—199 lbs. mutton.
7 plucks.

These were destroyed under warrant of the magistrates.

Food and Drugs Act.—This Act is administered (as in former years) by a Joint Committee of County Council and Burgh, and the work is performed by their own officials.

Schools.—The three schools in the Burgh have been frequently visited, including conveniences, and they are always kept in a satisfactory condition and no complaints were received.

Lodging-houses.—There are no Common Lodging-houses in the Burgh.

Tents and Vans.—The tents and vans which are occasionally located on our Show-ground have been visited and inspected from time to time. They generally rest for a night or two in passing through the country. They have always been found in a clean condition. No complaints have been received and no overcrowding noted.

Dairies, Cowsheds, and Milkshops.—There is one milkshop in the Burgh, two places where cows are kept, and eleven purveyors of milk from the country districts. These are all carefully attended to and visited from time to time.

Interments.—There were no interments carried out under Section 69 of the Public Health Act, 1897, during the past year.

Bye-laws.—The only Bye-laws in the Burgh are those regulating operations in the Slaughter-house, and these have been duly enforced.

Burial Grounds.—There are no burial grounds in the Burgh."

BURGH OF SANQUHAR.

Water Supply.—This is provided by arrangement with a private company which takes water from the Glendyne Burn. The source is not liable to any obvious pollution, and the water is filtered before delivery to consumers. The adequacy of the filtration is at present under consideration.

Drainage.—The new sewage works, referred to in my report of last year, are now in process of building. By the time they are finished, along with the new sewer which is to be provided, the whole Burgh will be served by an up to date drainage system.

Housing.—Reports on 32 houses in which sanitary accommodation was insufficient were considered by the Council, and discussions between them and the proprietors are taking place at present.

Three plans of alterations to existing houses were submitted during the year.

Slaughter-house.—This has been visited from time to time and found well conducted.

Common Lodging-houses.—No cause for complaint was found during the year.

Nuisances.—Investigation of two alleged nuisances was made, and four letters sent in consequence.

BURGH OF LOCHMABEN.

Water Supply.—It is of good quality, and adequate storage is provided; but during the long dry period during the summer of 1930 a serious shortage occurred, due to the presence of a number of undetected leaks in the system, which rapidly emptied the reservoirs. For a considerable time the inhabitants of the Burgh were compelled to carry most of their water from springs, and much inconvenience was experienced. This was shared by the Dumfries and Galloway Sanatorium, which gets its supply from the Burgh pipes. Proverbially, the water is not missed till the well runs dry, and the experience of last summer should be of value in emphasising the need for seeing that leaks are repaired before acute shortage demonstrates their existence beyond all doubt.

Drainage.—Considerable works were carried out at the sewage installation, where the syphon and the distributing arms of the biological filters were out of order. Those have now been put right.

Housing.—The chief problem in the way of housing by which the Burgh is confronted is at Marjoribanks. The houses there are of a very poor quality, and have frequently been referred to in my reports. They number nineteen, housing about 72 inhabitants. At least twelve are unfit for habitation, and the remainder nearly all require a considerable amount of attention to make them reasonably fit. The whole area has been reported to the Town Council, who are considering their future housing policy, and in the meantime a general survey of all houses in the Burgh is being undertaken as rapidly as time permits.

Plans for two new houses (both subsidy houses) and for alterations to three existing houses were passed during the year. Of the latter, two were under the Burgh's scheme made under the Housing (Rural Workers) Act. Of those, one was passed as satisfactory, the other was not.

Nuisances.—Investigation of four alleged nuisances was made and four letters sent in consequence.

BURGH OF LOCKERBIE.

Mr Walker reports :—

" **Water Supply.**—The Burgh has an adequate supply of good water, the gathering ground for which is in hilly country in the nature of a stream fed by several springs. The reservoir, which is situated at Bankshill, about five or six miles from the town, has a storage capacity of over fifteen million gallons. From the reservoir it is fed by a seven inch pipe to the sand filters, which are in close proximity to the town, thence into storage tanks—the total capacity of which is two hundred and forty thousand gallons.

During the summer months of the year a scheme was carried through to increase the storage capacity of the tank by one hundred and forty thousand gallons, also to provide an auxiliary five-inch main from the tank to the lower end of the town.

Samples of the water are taken periodically by the Medical Officer of Health.

Drainage.—The sewers and drains throughout the town have given little or no trouble during the year. The sewers were all examined periodically.

All new drains and alterations to drains were done under my personal supervision.

Sewage Disposal Works.—These have been kept in good repair and are working satisfactorily.

Scavenging.—The cleansing of the town has been satisfactorily carried out. The collecting is done by two horses and carts, which collect the refuse three days in the week. A special collection for waste paper is made on the Fridays, the paper being carted to a suitable site and burned. The household refuse is carted to a low-lying site about a mile from the town, where it is covered over with soil.

Nuisances.—There was no trouble in abating such nuisances as occurred.

Inspections.—Regular inspections were made for the detection of nuisances.

Slaughter-house. — The Burgh slaughter-house is inspected daily. The premises are in good order and well conducted. During the year 195 seizures of meat were made.

Schools.—Lockerbie Academy is the only school in the town. Frequent inspections are made. The sanitary arrangements are well looked after and in good order.

Factories and Workshops.—During the year forty-three inspections were made to workshops. All are satisfactory.

Common Lodging-house.—This is a small house of two bedrooms and kitchen. It is well managed.

Dairies, Cowsheds, and Milkshops.—There are two registered Dairies in the Burgh, which are well kept.

Burial Grounds.—Dryfesdale Parish Churchyard—This is the only burial ground within the Burgh. The interments now are limited to a few old residenters. It is well attended to.

New Buildings, Alterations, etc.—During the year the following plans and alterations were passed by the Local Authority :—

New dwelling-house	1
Alterations to houses	2
Garages, sheds, etc.	4

BURGH OF MOFFAT.

Mr Sanson reports :—

"**Water Supply.**—The water supply for the Burgh is a gravitation one, and is derived from springs which rise on the lands of Granton estate, about four miles to the north of the town. The gathering ground is wholly hill pasture and well removed from any likely means of contamination. The water is of good quality and the levels in the reservoirs seldom vary throughout the year. No filtration is necessary. The new steel main which was recently put down between the works and the Burgh has proved highly satisfactory, the pressure in all districts being greatly increased, and no complaints as to shortage of water have been received since the work was completed. The daily average consumpt for the past twelve months has been fifty-six gallons per head of population.

Drainage.—The drainage of the Burgh has its outfall to the south of the town. The purification works which were designed by Mr Gilbert Thompson, C.E., Glasgow, have now been in operation for two years. The works are being carefully supervised, with the result that excellent results are being obtained, and the effluent which is discharged into the river Annan is highly satisfactory.

Storm overflows have been provided in several parts of the town. These overflows are connected to a pipe which carried the flood water during heavy rain direct to the river, thereby relieving the disposal works and at the same time preventing flooding in the low-lying districts of the Burgh.

Cleansing.—The cleansing is carried out by the Burgh workmen, and except in a few instances the daily removal system is in operation. The refuse is carted to a dump outside the Burgh boundary, two horses and carts being employed on this work. The quantity of household and street refuse removed averages four tons per day. Care is taken to prevent the ash bing from catching fire, and the refuse which is kept free from waste paper and tins, etc., is spread in layers and top-dressed with road scrapings and other suitable material. A large area of march land is being reclaimed. This reclamation was commenced six years ago, and part of the reclaimed land is now under cultivation.

The public conveniences in the Burgh receive careful attention, and are kept in a thoroughly sanitary condition.

With a view to keeping the main streets of the Burgh in a tidy condition during week-ends, the cleansing department are at work for two hours on Sunday mornings. This arrangement is found to be well worth while, as much litter is left at bus stances and parking places.

Nuisances.—There were nine complaints received during the year, which were enquired into and steps taken to secure the abatement of the nuisance when this was considered necessary. The number of nuisances dealt with was twenty-seven, and in no case was it necessary to send out statutory notices in terms of Section 20 of the Public Health (Scotland) Act. The nuisances dealt with were mostly choked drains and structural defects.

Housing.—The housing conditions in the Burgh continue to receive the attention of the Council. In Syme Street and Annangate a number of houses have been reported upon by the Medical Officer and steps are now being taken to have this area dealt with under a Slum Clearance Scheme.

Common W.C.'s.—Serving two tenants, seven; serving three tenants, two. Houses without water and sink inside the house, two. Dry closets, nil. Privy middens, nil. Ashpits, nil.

Slaughter-house.—The public slaughter-house continues to be maintained in a satisfactory condition. The premises are under the direct control of the Town Council, and are at all times kept in a clean and wholesome condition, and free from objectionable odours. The inside walls are lime-washed several times each year, and the byres and cattle pens are washed out daily.

No seizures of unsound meat were made during the year.

Schools.—There are five schools in the Burgh, viz.:—Warriston, Burnbraes, St. Ninian's, Moffat Academy, and Moffat Infant School. In each case the premises have been maintained in a highly satisfactory manner throughout the year.

Factories and Workshops.—Several visits of inspection were made to each of the workshops in the Burgh. The premises were generally found to be well kept. In one case it was found necessary to call upon the proprietor to provide lavatory accommodation.

Common Lodging-houses. — There is no common lodging-house within the Burgh.

Bakehouses.—There are four bakehouses in the Burgh, to which eight visits of inspection were made. In each case the premises were found to be in a satisfactory condition.

Milkshops.—There is one milkshop in the Burgh. The premises have been visited monthly, and on each occasion they were found to be in a clean and wholesome condition. The proprietor is now considering the carrying out of several improvements to the premises.

Burial Grounds.—The burial ground in the Burgh is seldom used, and is kept in good order."

BURGH OF LANGHOLM.

Mr Oliver reports:—

"**Water Supply.**—The water supply has been maintained in a most satisfactory condition throughout the whole year. There has been an abundant quantity, and during my routine inspections I did not discover any defects of quality, nor did I receive any complaints from the householders regarding the service.

The main pipes and fittings were inspected regularly, flushed periodically, kept generally in efficient working order, and the supply cistern was emptied and thoroughly cleaned out.

The springs at the source were inspected and found to be in a clean and wholesome condition, and no indications of contamination were observed during the inspections.

The supply and distribution are of a first-class character, well able to keep the Burgh properly supplied with pure water.

Drainage and Sewage Purification.—The sewerage and main drainage systems continue to function properly and efficiently deal with the sewage effluent and surface water at all normal times. There have been no serious chokes or nuisances arising from the system throughout the year.

The usual routine work has been carried out at the outfall works, the screens cleaned, and tanks sludged regularly. The outfall effluent discharging into the river Esk is quite satisfactory, and no complaints were received regarding nuisances arising from the work of sewage disposal.

One hundred and twenty-six loads of sludge and one hundred and four loads of detritus from screening chambers were disposed of at the refuse coup at Wauchope, where it was properly covered up with fulzie.

Scavenging and Cleansing.—The scavenging and cleansing has been dealt with as in former years, and the work has been carefully and efficiently carried out.

I am pleased to report a considerable improvement on the refuse coup at Wauchope. The Town Council have constructed a closed incinerator for burning paper, etc., and the working face is now cleaned daily in place of weekly as formerly.

During "rat week" an intensive and successful campaign was carried out, when over 250 rats were destroyed.

One thousand six hundred and two loads of household refuse and 225 loads of waste paper were collected and disposed of during the year.

Nuisances.—The usual routine inspections were carried out, and several complaints regarding nuisances received and investigated. The nuisances dealt with were, for the most part, of a minor character, and were remedied on verbal notice being given to the parties responsible.

Six statutory intimations in terms of Section 19 of the Public Health (Scotland) Act, 1897, were served where nuisances of a more serious character were found to exist, but in no case was it necessary to ask the Local Authority to institute statutory proceedings.

There are no closets on the conservancy system, earth closets, or privies within the Burgh, and the number of water closets serving more than one tenant and houses without water and sinks inside the houses are as follows :—

Common water-closet, serving 2 tenants	42
Common water-closet, serving 3 tenants	22
Common water-closet, serving 4 tenants	4
Common water-closet, serving 5 tenants	3
Common water-closet, serving 6 tenants	1
Houses without water and sinks inside the house	76
Ashpits serving one house only..	5

The Local Authority are at present considering schemes to deal with insanitary houses. A large number of the above cases of inadequate water supply and sanitary accommodation occur in the houses to be dealt with and will be remedied by the Town Council's proposed scheme.

List of Nuisances Dealt With.

Houses dirty	4
Water-closets defective	8
Water-closets choked	14
Choked drains	12
Defective drains	4
Choked sinks and waste pipes	9
Insanitary sinks replaced	6
Accumulations of stable manure	2
Dirty back areas	6
Dirty common passages	9
	—
	74

Slaughter-houses.—The three private booths licensed by the Local Authority were inspected regularly, and found to be kept in a satisfactory condition throughout the whole year.

The following carcases were inspected:—209 oxen, 2 heifers, 511 sheep, and 7 pigs.

In no case was it found necessary to detain a carcase for inspection by the Meat Inspector.

Burial Grounds.—There are no burial grounds within the Burgh.

Factories and Workshops.—Twenty-four inspections of factories and workshops were carried out during the year, and generally these were found to be in a satisfactory condition. Two notices were served on the proprietors of factories where the sanitary accommodation was defective, and one notice on the occupier of a bakehouse which required lime-washing. The whole of these notices were punctually attended to.

Houses Let in Lodgings and Common Lodging-houses.—There are no houses let in lodgings or common lodging-houses within the burgh.”

LABORATORY REPORTS.

A. BACTERIOLOGICAL LABORATORY.

Dr Armstrong reports as follows :—

Five thousand nine hundred and sixty-one bacteriological examinations were made during the twelve months ending 31st December, 1930, being an increase of 1608 on the previous year.

The typhoid outbreak at Ecclefechan was responsible for a large increase in the number of examinations done upon fæces and urine, and also in the number of bloods for "Widal" or agglutination tests.

In addition, an increased number of swabs has been submitted for Diphtheria.

For the purpose of comparing the figures of examinations made during 1930 and 1929, the following data are given :—

	1930.	1929.	Increase or	Decrease.
Swabs for Diphtheria	2106	1570	536	...
Sputa	496	626	...	130
Widals	606	46	560	...
Blood Cultures	9	7	2	...
Blood Examinations	90	85	5	...
Cerebro-Spinal Fluid	36	17	19	...
Fæces	347	42	305	...
Urines	372	106	266	...
Pus and Pathological Fluids	77	83	...	6
Miscellaneous	71	74	...	3
Wassermann	245	246	...	1
Gonococci	244	212	32	...
Milk	883	796	87	...
Water	183	150	33	...
Histological	50	80	...	30
Anthrax	124	178	...	54
Vaccines	22	35	...	13
Total	5961	4353	1845	237

Increase, 1608.

Swabs for Diphtheria.—These have been taken for the purpose of diagnosis, of determining length of treatment, and of detecting carriers. They are not a true index of the amount of diphtheria present in an area, as in some cases it is necessary to take six or seven or even more swabs before reporting that the throat is free from C. Diphtheriæ. Large variations may be expected from year to year. The year 1930 shows an increase of 536, notwithstanding the fact that the number of swabs taken in the County of Dumfriesshire (including the burghs) fell from 925 in the year 1929 to 598 in the year 1930. In the area outwith the County served by this laboratory the number of swabs submitted in the same periods has risen from 645 to 1508.

Sputa show a decrease of 130.

Of the total of 496, 438 were examinations for the tubercle bacillus, the remaining 58 being for the determination of the causal organisms in respiratory diseases.

Widal's reaction for bacilli of the enteric group show a large increase owing to the typhoid outbreak at Ecclefechan. The outbreak was also responsible for the large increase recorded in the numbers of *fæces and urines* examined.

Venereal Disease.—To help the detection of this in suspected patients, 245 Wassermann reactions were done and 244 examinations for gonococci. The number of Wassermann reactions done is practically the same as last year, but the examinations for gonococci show a slight increase of 32.

Milk.—The examinations of milk again show an increase, a total of 883 being done as compared with 796 for the year 1929. Of the 883 done, 232 were done for outside sources and 651 for the County Authorities. As regards Dumfriesshire, these milks taken from various sources were subjected to examinations for (1) Bacterial count, (2) Presence of tubercle bacillus, (3) Presence of other pathogenic organisms, *e.g.*, the causal organism of mastitis.

Examinations for the tubercle bacillus numbered 151, of which 11 were positive. These figures are not an index of bovine tuberculosis, as animals which are obviously tuberculous, from a clinical point of view, are often taken under the Tuberculosis Order without a bacteriological examination. The samples submitted are usually those in which there is an element of doubt.

Nineteen milks were tested for acetone, 5 for actinomycosis, 239 for organisms other than tubercle bacilli, and 234 for bacterial count. Out of this latter number 183 were for the purpose of testing graded milks, and 51 for testing non-graded milks. Separate tables showing details of bacterial counts are given.

The following bacteriological standards for graded milk have been prescribed by the Scottish Department of Health:—

Certified.—The milk must not contain more than 30,000 organisms per c.c., or any Bacillus Coli in 1/10th c.c.

Grade A (Tuberculin Tested) and Grade A.—The milk must not contain more than 200,000 organisms per c.c., or any Bacillus Coli in 1/100th c.c.

Anthrax.—The number of examinations for Anthrax has dropped from a total of 178 to one of 124, and of these totals the number done for the County of Dumfriesshire has dropped from 175 to 119. Out of the latter figure of 119, 11 were positive.

Histological examination of tissue still continues, and 50 specimens were submitted. Of this number, 31 came from Dumfries and Galloway Royal Infirmary.

The examinations of the tissues were made for the purposes of diagnosis or prognosis or to see if further treatment was necessary.

Waters.—One hundred and eighty-three samples were examined, and of this number 10 were done for the Stewartry, 9 for Wigtownshire, and 2 for private individuals. The remaining 162 consisted of the quarterly examinations of the supplies to Special Water Districts, and of other waters used as, or intended for use as, domestic supplies. A table has been drawn up, showing the results of examinations of Special Water District supplies, so far as the presence of Coliform Bacilli is concerned.

Another table has been drawn up showing the sources of pathological material, and the material submitted.

ED. ARMSTRONG

TABLE SHOWING SPECIMENS SUBMITTED AND SOURCE OF SUPPLY

	Dumfries County	V.D. Clinic	Dumfries Burgh	Stewartry of Kirkcudbright	Wigtown County	Maxwelltown up to [illegible] May, 1929	Dumfries and Galloway Royal Infirmary	Private	Total
Swabs (Diphtheria) ...	598	...	546	477	[illegible]	[illegible]	[illegible]	...	[illegible]
Sputa	156	...	166	164	32	18	[illegible]	..	[illegible]
Widals	549	...	14	1	8	..	31	...	[illegible]
Blood Cultures	8	...	...	...	1	...	...	...	[illegible]
Blood Examinations ...	14	...	8	21	7	1	22	14	[illegible]
Cerebro-Spinal Fluid ...	11	...	1	3	12	..	[illegible]	..	[illegible]
Faeces	326	...	6	17	1	...	1	...	[illegible]
Urines	321	...	25	6	6	...	9	5	[illegible]
Pus and Pathological Fluids	33	...	12	5	7	2	17	1	[illegible]
Miscellaneous	57	...	5	3	3	2	1	..	[illegible]
Wassermann	51	81	[illegible]	17	18	3	22	...	[illegible]
Gonococci	36	149	23	11	14	..	11	...	[illegible]
Milk	651	...	49	116	66	...	...	1	[illegible]
Water	162	...	...	10	9	...	...	2	[illegible]
Histological	4	...	7	4	4	...	31	...	[illegible]
Anthrax	119	...	...	3	...	...	...	...	[illegible]
Vaccines	...	...	...	...	...	...	...	22	[illegible]
Total	3096	230	915	[illegible]	[illegible]	82	185	45	[illegible]

GRADED MILKS.

Microbes per c.c.	No. of Samples.	B. Coli.							
		Absent from 0·1 c.c.		Present in 0·1 c.c.		Present in 0·01 c.c.		Present in 0·001 c.c.	
		No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.
Under 30,000	117	103	56·29	10	5·46	3	1·64	1	·55
Over 30,000 and under 200,000	32	19	10·38	8	4·37	2	1·09	3	1·64
Over 200,000	31	6	3·28	10	5·46	3	1·64	15	8·20
Total	183	128	69·95	28	15·29	8	4·37	19	10·39

NON-GRADED MILKS.

Microbes per c.c	No of Samples.	B. Coli.							
		Absent from 0·1 c.c		Present in 0·1 c.c.		Present in 0·01 c.c.		Present in 0·001 c.c.	
		No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.
Under 30,000	6	5	9·80	...	...	1	1·96	...	...
Over 30,000 and under 200,000	19	9	17·65	5	9·80	2	3·92	3	5·89
Over 200,000	26	...	...	5	9·80	6	11·77	15	29·41
Total	51	14	27·45	10	19·60	9	17·65	18	35·30

WATER SUPPLIES TO THE SPECIAL WATER DISTRICTS.

Smallest amount of Sample in which Coliform Bacilli were detected.

Quarters.	I.	II.	III.	IV.
Lower Annandale ...	—	100 c.cs.	1 c.c.	10 c.cs.
Bankshill	—	100 c.cs.	10 c.cs.	100 c.cs.
Blackshaw	—	—	—	—
Crawick...	10 c.cs.	100 c.cs.	10 c.cs.	10 c.cs.
Dumfries (Landward)	100 c.cs.	—	100 c.cs.	100 c.cs.
Eaglesfield	—	—	10 c.cs.	100 c.cs.
Ecclefechan	100 c.cs.	100 c.cs.	100 c.cs.	...
Glencaple	—	10 c.cs.	1 c.c.	100 c.cs.
Kirkconnel	—	1 c.c.	0·1 c.cs.	100 c.cs. (Old Supply) 1 c.c. New Supply)
Lockerbie Burgh ...	10 c.cs.	Not done	10 c.cs.	Not done
Moniaive	—	10 c.cs.	0·1 c.cs.	1 c.c.
Netherwood, Kelton, & Craigs	100 c.cs.	—	100 c.cs.	100 c.cs.
Penpont	—	—	100 c.cs.	—
Rotchell and Raffles ...	—	—	—	10 c.cs.
Thornhill	100 c.cs.	10 c.cs.	0·1 c.cs.	10 c.cs.

— Indicate Coliform Bacilli absent from 100 c.cs.

B. CHEMICAL LABORATORY.

Mr Hawley reports as follows :—

The Laboratory meets the administrative requirements of the Counties of Dumfries, Kirkcudbright, and Wigtown, and the Burghs therein. Work done may be grouped concisely as under :—

(i) Analyses made for County Councils in the area, almost the whole of which are on behalf of the respective Public Health Departments.

(ii) Analyses made under the Food and Drugs (Adulteration) Act, 1928, for the various local authorities in the area.

(iii) The examination of Medicines for the National Health Insurance Committees of the Counties, and of the Burgh of Dumfries.

(iv) Sundry other analyses for approved institutions and individuals in Dumfries and Galloway.

Groups (i) and (ii) comprised over 83 per cent. of the 1077 samples received during the year.

ANALYSES MADE FOR THE COUNTY COUNCILS.

(a) Dumfriesshire.

Work for the Public Health Department has continued largely on the usual lines. With the exception of sundry problems of diverse nature which arise from time to time and call for special treatment, it comprises mainly the examination of Milk, Water, Sewage, and Sewage Effluents.

In all 468 samples were received, representing 43·4 per cent. of the total.

MILK.

The Milk (Special Designations) Order (Scotland), 1923, regulates the sale of Graded Milk, and *inter alia* fixes the minimum percentage of Milk Fat at 3·5.

Whilst one Creamery is licensed to produce Pasteurised Milk, Grade "A" milk is not produced in the County.

Licences are for the higher qualities, either Grade "A" (T.T.) or Certified.

One hundred and seventy-one Samples were taken by the Veterinary Inspectors during their visits to the premises of licensees, and when examining herds. These, submitted at fairly regular intervals, were examined for Milk Fat and Non-Fatty Solids. The "Acidity" was also determined, throughout the greater part of the year.

The systematic laboratory examination of Graded Milk adopted last year in the Stewartry of Kirkcudbright has been continued. 55 Graded and 4 other samples were received from the Veterinary Inspector. These samples afford an interesting comparison with those taken in Dumfries. So far, none have been received from Wigtownshire.

The mean percentage of Milk Fat for the Dumfries samples was 3·94, a decrease on the previous years—1929, 4·06; 1928, 3·98. The Kirkcudbright figure is in close agreement—3·9[illegible] per cent.—also a decrease.

Table No. I shows the mean percentages of Milk Fat for the various herds. For convenience, figures from the previous years are included, together with those for Kirkcudbright.

Table No. I.

DUMFRIESSHIRE.

		Milk Fat per Cent.				
Producer.	No. of Samples.	1930.	1929.	1928.	1927.	Period
A	18 "A" (T.T.)	4·22	4·11	4·10	3·95	4·09
B	12 Do.	4·09	...	...	...	...
C	15 Certified.	4·04	4·[illegible]4	3·90	3·94	4·13
D	12 "A" (T.T.)	4·02	4·03	3·92	...	3·94
E	10 Do.	3·96	4·19	3·78	3·93	3·96
F	14 Certified.	3·95	4·00	4·07	4·04	4·01
G	14 "A" (T.T.)	3·93	4·19	4·23	...	4·12
H	17 Do.	3·91	3·88	3·83	3·82	3·86
I	20 Do.	3·91	4·04	3·87	...	3·94
J	4 Do.	3·91	3·99	3·90	3·8[illegible]	3·90
K	13 Do.	3·81	4·22	4·18	..	4·[illegible]7
L	13 Do.	3·61	3·63	..	..	..
M	9 Do.	3·60	3·80	3·93	3·82	3·79
Annual Av.	171	3·94	4·06	3·96	3·96	3·98

KIRKCUDBRIGHT.

Producer.	No. of Samples.	Milk Fat per Cent. 1930.	Milk Fat per Cent. 1929.	Cows. Nature.		Cows. No. in Herd.
A	9 "A" (T.T.)	4·17	4·65	Pedigreed & Recorded.	Ayrshire.	70
B	11 Do.	4·13	4·03	Do.	Do.	80
C	9 Certified.	4·02	3·97	Do.	Do.	28
D	9 "A" (T.T.)	3·85	4·33	Do.	Do.	40
E	8 Certified.	3·80	3·86	Recorded.	Do.	65
F	9 Do.	3·55	3·77	Do.	Friesian.	40
Annual Av.	55	3·98	4·07			
All Graded	226	3·95				

With few exceptions, the animals composing the Dumfriesshire herds are pedigreed and recorded Ayrshires.

For particulars of the Stewartry herds I am indebted to the Veterinary Inspector for the Stewartry of Kirkcudbright, Mr J. Waddell, M.R.C.V.S.

From the table it is seen that the milk from four herds of a total of 13 in Dumfries contained on an average 4 per cent. or more Milk Fat. For Kirkcudbright, the corresponding figures are three herds in a total of 6.

As might be anticipated from the decrease in the mean percentage of Milk Fat the number of samples falling below the 3·5 per cent. limit shows an increase—14 cases involving 10 herds, compared with 4 cases involving 2 herds in 1929, and 8 cases with 7 herds in 1928. In the majority of cases the deficiency was small. Particulars of these are as follows :—

Table No. 2.

DUMFRIESSHIRE. Quarter.	Producer.	Result.
(1)	F	2·60%
(1)	K	3·30%
(1)	B	3·30%
(2)	M	3·00%
(2)	L	3·10%
(2)	G	3·35%
(2)	J	3·35%
(2)	I	3·32%
(2)	I	3·40%
(2)	C	3·40%
(3)	M	3·35%
(3)	H	3·35%
(3)	G	2·85%
(4)	H	3·25%
KIRKCUDBRIGHT.		
(1)	F	2·90%
(2)	F	2·72%
(2)	F	3·15%
(2)	E	3·27%

Samples taken under the Food and Drugs Act probably afford a fair index of the composition of milk as ordinarily retailed. During the year 45 such samples were taken in Dumfries and 44 in Kirkcudbright and Wigtown. The averages of these fall below those of the graded supplies. They include, however, several adulterated samples. Comparative data in the form of quarterly averages are shown in Table No. 3. For completeness the Non-Fatty Solids are also included.

Table No. 3.

	Graded.				Food and Drugs Act.	
	Dumfries.		Kirkcudbright.		All.	
Quarter.	Fat.	N.F.S.	Fat.	N.F.S.	Fat.	N.F.S.
1	4·02	8·80	3·92	8·73	3·74	8·85
2	3·91	8·86	3·96	[illegible]	*3·92	8·74
3	3·90	9·03	3·98	[illegible]	3·74	8·86
4	3·95	8·91	4·09	8·87	3·94	8·84
Year.						
1930	3·94	8·92	3·98	8·83	3·78	8·84
1929	4·06	8·88	4·07	[illegible]	[illegible]	[illegible]
1928	3·96	8·85	4·10	[illegible]	[illegible]	[illegible]
1927	3·96	...	...	...	...	...

* Corrected for two adulterated, 3·27.

When the various samples are arranged in groups (as in Table No. 4), each group differing from the previous one by ·5 per cent. Milk Fat, it is seen that groups 1 and 2 have increased, with a similar decrease in groups 5 and 6. Groups 3 and 4 show no material change.

Table No. 4.

Percentage of Samples in each group.—Dumfriesshire.

Group.	Graded.			"Ordinary."		
Fat %.	1928.	1929.	1930.	1928.	1929.	1930.
(1) Under 3·00 ...	·8	...	1·7	3·3	5·5	4·4
(2) 3·00-3·49 ...	5·6	3·5	7·0	26·4	29·2	31·1
(3) 3·50-3·99 ...	50·4	44·4	46·8	44·2	38·9	40·0
(4) 4·00-4·49 ...	30·4	44·8	37·4	25·5	22·2	24·5
(5) 4·50-4·49 ...	10·4	6·0	5·3	5·9	4·2	...
(6) 5·00 and over	2·4	1·3	1·7	...	...	...
or alternatively.						
(1) 5% and over	2·4	1·3	1·7	...	...	...
(2) 4·50 and over	12·8	10·3	7·0	5·9	4·2	...
(3) 4·00 and over	43·2	55·1	44·4	29·4	26·4	24·5
(4) 3·50 and over	93·6	96·5	91·2	70·6	67·3	64·5*
(5) 3·49-3·00 ...	5·6	3·5	7·0	26·4	29·2	31·1
(6) Under 3·00 ...	·8	...	1·7	3·3	5·5	4·4

* S.D. Limit.

Generally, the percentage of Milk Fat has shown a slight all-round decrease, but considering the mean percentages, particularly of the various herds and the quarterly averages, they afford no reason for revising the opinion expressed last year that, so far as this County is concerned, the 3·5 per cent. standard of the Department of Health for Graded Milk is fair and reasonable.

NON-FATTY SOLIDS.

Although the Order prescribes no standard for Non-fatty Solids, these are usually determined for future guidance and for use in Court. Apart from a slight increase in the yearly average, these show no material change.

Table No. 5 shows the figures for Fat, Non-fatty Solids, and Ash arranged in the form of monthly averages, together with figures for two previous years.

Table No. 5.

DUMFRIESSHIRE.

	Fat.			Non-Fatty Solids.			Ash.	Kirkcudb't. 1930.	
No.	1930.	1929.	1928.	1930.	1929.	1928.	1930.	Fat.	N.F.S.
January ...	3·92	3·74	4·16	8·90	8·80	8·54	·77		
February ...	3·95	3·65	4·04	8·70	8·84	8·91	·72		
March... ...	4·13	4·40	3·98	8·80	8·84	8·78	·73		
April	4·29	4·15	3·84	8·84	8·63	8·49	·73		
May	3·79	3·80	3·79	8·86	8·91	8·85	·66		
June	3·61	3·77	3·52	8·89	8·70	8·92	·73		
July	3·77	4·15	3·90	9·13	8·80	8·88	...		
August ...	3·94	4·04	4·29	8·93	8·83	8·94	·68		
September ...	3·99	4·03	4·11	9·02	8·89	9·07	·72		
October ...	4·08	4·17	3·93	8·96	9·17	8·90	·76		
November ...	4·11	3·88	4·00	8·91	8·92	8·80	·78		
December ...	3·78	4·18	3·89	8·86	8·90	8·94	·73		
Quarterly.									
1st	4·02	3·96	4·08	8·80	8·82	8·78		3·92	8·73
2nd	3·91	3·97	3·72	8·86	8·73	8·75		3·96	8·86
3rd	3·90	4·10	4·05	9·03	8·83	8·96		3·98	8·95
4th	3·95	4·09	3·95	8·91	9·06	8·87		4·09	8·87
Year	3·94	4·06	3·96	8·92	8·88	8·85		3·98	8·83
KIRKCUDBRIGHT.									
	3·98	4·07	4·10	8·83	8·89				

Group distributions (by ·1 per cent. Non-fatty Solids) for 1930 and 1929 are as follows—together with corresponding figures for samples taken under the Food and Drugs Act :—

Table No. 6.

Percentage of Samples in each Group.

	Graded.		Food and Drugs Act. Dairies.		Dis. and Cd.
	1929.	1930.	1929.	1930.	1926-29.
Under 8 ...	·9	·6	...	...	1·6
8·00-8·09 ...	1·7	·6	1·4	...	·4
8·19	1·7	...	1·4	...	1·0
8·29	...	·6	...	...	1·9
8·39 ..	4·3	2·3	1·4	...	1·3
8·40-8·49 ...	4·3	1·8	1·4	2·2	1·5
8·50-59 ...	6·9	7·6	19·4	11·1	15·[illegible]
8·60-69 ..	6·0	7·6	16·7	8·9	15·[illegible]
8·70-79 ...	12·1	10·5	13·9	15·6	14·1
8·80-89 ...	12·9	18·7	13·9	20·0	17·4
8·90-99 ...	7·8	10·5	12·5	22·2	14·4
9·00-19 ...	25·9	20·5	12·5	17·8	14·0
9·20-39 ...	10·3	11·7	4·1	2·2	4·1
9·40 and over	5·2	7·0	1·4	...	·4

During the year 10 samples fell below the 8·5 per cent. Non-fatty Solids limit of the [illegible] Milk Regulations compared with 15 the previous year.

Particulars of these are as follows :—

Table No. 7.

Certified Milks. 1930.

Dumfries. Quarter.	Producer.	Fat.	N.F.S.	Ash.
(1) ...	... A ...	... 4·05	8·38	·70
(1) ...	... A ...	... 3·65	8·40	·68
(1) ...	... L ...	... 2·75	8·07	·72
(1) ...	... C ...	... 4·00	7·93	·74
(2) ...	... A ...	... 4·30	8·28	...
(2) ...	... L ...	... 3·40	8·45	·77
(2) ...	... I ...	... 4·20	8·45	...
(2) ...	... I ...	... 3·90	8·23	·72
(4) ...	... F ...	... 4·15	8·38	·75
(4) ...	... L ...	... 3·37	8·36	·78
KIRKCUDBRIGHT.				
(1) ...	... B ...	... 3·75	8·28	·60
(1) ...	... F ...	... 4·00	8·45	·73
(2) ...	... F ...	... 4·15	8·49	·67
(4) ...	... A ...	... 4·70	8·28	·68

ACIDITY.

This determination has been discontinued as from the end of the year, since the examination of 150 samples simply confirmed previous findings.

OTHER SAMPLES.

Thirty-six Samples taken by the Veterinary Inspectors when visiting farms were submitted to the usual analysis. 24 of these submitted to the usual examination averaging 3·92 per cent. Milk Fat. 12 Samples, 11 from individual cows, were taken from a herd noted for low Non-fatty Solids. In view of their general interest the individual figures are reproduced below.

	28th May.			28th June.			Chlorides
Cow.	Fat.	N.F.S.	Ash.	Fat.	N.F.S.	Ash.	as N_aCl.
Mary ...	3·20	8·00	·76	3·05	7·88	·80	·162
Violet ...	3·60	8·01	·81	3·00	8·19	·74	·124
Tad ...	3·10	8·60	·74	3·25	8·41	·74	·173
Baby ...	3·50	9·04	·67	3·75	8·89	·73	·101
Flo ...	3·75	8·31	·75	...	...	...	...
Callie ...	...	...	...	4·20	9·06	·77	·111
No mark	3·15	9·43	·74	...	...	...	...

Two others were examined for "Acidity" only, and a careful examination, particularly of the Ash of another Sample possessing a characteristic odour, showed no chemical abnormality.

WATER—POTABLE.

(a) Special Water Districts.

Examination is made of samples drawn from the Special Water Districts every quarter, and half-yearly from the Lockerbie Burgh Supply.

The detailed analyses of these are given in Table No. I of the Appendix.

Seven other samples were submitted to a partial examination only.

Complaints were received from Moniaive regarding the presence of Suspended Matter in the water. Three samples taken from the supply in the Village and from the Reservoir and its feeder showed that this Suspended Matter consisted almost entirely of Compounds of Iron, derived evidently from the fittings, as no excessive amount of Iron was present in the water at the Reservoir.

Four samples received from the Local Government Officer at Kirkconnel had reference to the presence of

Suspended Matter. Microscopical examination of the sediments revealed the presence of a variety of undesirable substances indicative of at least faulty filtration. This question is having attention at the time of writing.

(b) Others.

Seventy-three others were examined for potability—some in connection with the proposed New Supplies or extensions to existing ones—others in relation to complaints. Broadly, they may be classified as follows:—Excellent, 5; Good, 39; Unsatisfactory, 29.

The presence of Lead Compounds in Solution was noted in one instance, ·02 part per 100,000 being present. Another sample gave a doubtful reaction for Lead or Copper.

In another instance Zinc Compounds equivalent to ·11 part per 100,000 were found in solution. This case resembles a similar case occurring last year—a new galvanised tank providing the source of Zinc. This particular water had an acid reaction, but was not treated.

Fourteen others were submitted to a restricted examination: 3 from the same source gave the following results:—

	Cold.	Hot.	After treatment with [illegible]
Lead	·10	·15	·018
Copper ...	Absent.	·15	Nil.

The third sample was the first water drawn off in the morning after standing overnight.

Two samples of an acid water, previously treated with limestone, contained Iron Compounds equivalent to 1·2 part per 100,000. When drawn from the tap these waters were clear and bright, but on standing a reddish brown mud separated out. It consisted of Compounds of Iron. In this instance limestone treatment proved ineffective, but the non-success was due largely to the fact that the water remained in contact with an iron pipe for some forty-eight hours—a 2-inch pipe, approximately 1000 yards long, being used to supply two cottages with a relatively small draw-off.

The Suspended Matter from two other samples was found to consist mainly of Sand, Oxide of Iron, with a little Lime, and a variety of Animal Life.

It was decided to disinfect the tank at Haregills, following the outbreak of Typhoid Fever at Ecclefechan. It consists of a covered-in concrete tank of some 45,000 gallons capacity. Disinfection was done by means of a strong solution of Bleaching Powder. This was added gradually to the water in the Inflow Chamber and passed with it into the tank, which was allowed to fill and to stand for 24 hours. At the end of that time the highly chlorinated water was examined for Free Chlorine, to confirm the adequacy of the treatment as well as to ascertain the necessary weight of dechlorinating re-agents, and a further examination was made after dechlorination to ensure that the water was innocuous before its discharge into the Ecclefechan Burn.

In addition frequent tests for the presence of Free Chlorine were made each day throughout the entire period of chlorination, two to three months. With few exceptions these tests were made by the Local Government Officer, who received the necessary training and instruction in the Laboratory and at the source of the supply.

RIVER WATER.

Having regard to the importance of river pollution, a start was made last year to collect information on the condition of the principal rivers in the County, and systematic examinations were made of the rivers Nith, Esk, and Annan. Samples of river water collected at a series of points were subjected to a complete chemical analysis. The data so obtained afford means of comparing the state of a river or rivers at various periods of the year.

According to the Royal Commission on Sewage Disposal, in their 8th Report, 1912, "the Dissolved Oxygen Test provides the most trustworthy chemical index of the actual state of a stream and should be adopted for purposes of a standard." On a broad general basis this standard may well be adopted as a criterion of the condition of the rivers here. Further study of the variations in the condition of a river requires a detailed analysis.

For the better appreciation of the "Dissolved Oxygen absorbed in 5 days' test" (usually referred to as "Dissolved Oxygen absorbed"), it may be stated that when Waste Liquor from manufacturing processes containing putrescible matter, *e.g.*, Creamery or Bacon Factory Waste, or Sewage or Sewage Effluent, is discharged into a stream or river, the immediate result is the more or less rapid absorption of the Dissolved Oxygen. The extent to which the river is deoxygenated will depend on the respective volumes of river water and of polluting liquor. Other factors are the concentration of the latter, the original condition of the river, and the rate at which it takes up further supplies of Oxygen from the air. The last-named varies with the temperature, depth, and speed of the river.

A fully deoxygenated water containing putrescible matter may be expected to give rise to nuisance, and apart from the question of nuisance any serious deoxygenation of a river is disastrous to fish life.

Generally, the condition of a river is described by the terms such as "Clean," "Fairly Clean," "Bad," etc. The proposed standard of the Royal Commission gives to these terms a definite meaning, as follows:—

Description.	Dissolved Oxygen absorbed in 5 days as parts per 100,000.
Very Clean	·1 part.
Clean	·2 part.
Fairly Clean	·3 part.
Doubtful	·5 part.
Bad	1·0 part.

Data obtained from isolated samples have a certain value, but it will be readily understood that systematic sampling, particularly over a period of years is much more valuable. Pressure of other work, particularly the outbreak of Typhoid at Ecclefechan, seriously hindered systematic sampling, but 40 samples were taken during the year.

Early in May one series of samples was taken on the non-tidal portion of the Nith commencing at the March Burn and finishing below the outfall of Thornhill Sewage Disposal Works. At that time the river was very low, as there had been practically no rain for several weeks.

The Creamery Effluent and Sanquhar Sewage created a distinct zone of pollution in the vicinity of Sanquhar Bargh, but, on account of the diluting effect and the condition of the river water this zone did not persist for any great distance. It is satisfactory to record that the Local Authority has decided to construct up-to-date Sewage Purification Works.

The Effluent from Thornhill Sewage Disposal Works, even at this period of very low water, was practically without effect, the figures above and below the works outfall being ·10 and ·13 part per 100,000 respectively. These works receive a concentrated and objectionable Trades Waste Liquor in addition to ordinary domestic sewage. Normally, they discharge a well nitrified and stable effluent and, as might be expected, there is no noticeable deterioration in the condition of the river immediately below the point of discharge, even in very dry weather.

In February a survey was made of the Cairn and tributaries about Moniaive—having regard to the probable early opening of the Moniaive Sewage Disposal Works. Six samples taken absorbed less than ·05 part per 100,000 of Oxygen, and were therefore all of exceptional "Cleanness." They were also fully saturated with Oxygen. It will be interesting to note the effect when the Sewage Disposal Works at Moniaive are in full operation.

In connection with the proposed Drainage Scheme for Ecclefechan a series of samples was taken from the Ecclefechan Burn in June when the burn was low. At a point well above Kirkconnel Hall the water absorbed ·18 part Dissolved Oxygen and was therefore "clean," and when it discharged into the Mein Water it was "fairly clean." Between these points it was, for the most part, very unsatisfactory. The proposed Drainage Scheme should markedly effect the condition of this water. Three other samples from the same burn in time of flood showed that one particular source of pollution, exercising a marked effect in dry weather, had little influence in time of flood.

Two samples of water from disused quarries were subjected to a partial examination with a view to determining their suitability for receiving the discharge from the proposed sewer at Eaglesfield. They were both "clean" and fully oxygenated. Having regard to the volume available, the observed outflow from the quarry and the probable volume and concentration of inflowing sewage, the opinion was expressed that, given suitable adjustments, no nuisance was likely to arise. When this drainage scheme is in full operation the water in the quarry will be carefully observed.

The Wanlock Water presents a different problem. Here the question is one of pollution by Compounds of Lead contained in the Effluent from the washing plant at Wanlockhead. The suggestion has been made that the Wanlock Water is responsible for poisoning sheep and cattle. It may be noted, however, that no digesta or viscera from animals alleged to have died of lead poisoning have been submitted for examination, but this aspect of the problem has not been overlooked. A series of samples were taken towards the end of May from the Wanlock Water between the Smelting Mill and its junction with the Crawick. Other samples were taken of the Crawick Water, the Spango Water, and of the mixed waters. Some of these samples contained Lead in varying amounts, but the Spango and the Crawick above the Wanlock did not. Portions of rock scrapings, sand from the banks of the Wanlock, and mud, also contained Lead in amounts varying from 5·7 per cent. to 5·7 gr. Lead per lb. of stones.

SEWAGE AND SEWAGE EFFLUENT.

Of 44 samples examined, 9 of Effluent came from Thornhill Sewage Disposal Works. At this works the composition of the Crude Sewage fluctuates considerably, due to an intermittent discharge from the Bacon Factory of highly concentrated Waste Liquors heavily charged with readily putrescible Organic Matter, and occasionally with brine.

As these rapid fluctuations in the composition of the incoming sewage were foreseen and provided for in the design of the works, the variations in the outflowing tank liquor are substantially less rapid and extensive. These works have been in operation for over two years, and their biological activity is now well developed. Throughout the year they have discharged a well purified, fully nitrified and stable effluent.

According to the suggested standard of the Royal Commission on Sewage Disposal, a standard Effluent should take up not more than 2 parts Dissolved Oxygen per 100,000. The average of 9 samples was 2·1 part per 100,000, with a maximum of 3, and a minimum of 1·2 parts.

Ponding, a marked feature of 1928, has, thanks to the Achorutes Viaticus, practically disappeared, as a second attempt made in 1929 to inoculate these filters with Achorutes taken from Lochmaben Sewage Works proved successful. The experience gained from the first and unsuccessful attempt in 1928 contributed materially to the success of the second attempt.

Twenty-two samples from Lockerbie Sewage Disposal Works were subjected to a partial examination only, with a view to determining the fluctuations in the strength of the incoming Sewage and Creamery Waste and in the concentration of the outflowing tank liquor. Effluent collected in December absorbed 4·3 parts Dissolved Oxygen per 100,000. There is still room for considerable improvement in the quality of the Effluent leaving these works.

A sample of effluent from Moffat Sewage Disposal Works gave a Dissolved Oxygen absorbed figure of 2·2 parts, while nitrification was satisfactory.

An effluent from Kirkconnel taken in May was unsatisfactory. The installation of additional filters, now nearly complete, should remedy this state of affairs. Despite a high figure for "Dissolved Oxygen absorbed," the effluent at that time had no very marked effect on the condition of the river.

The composition of Tank Liquors from Moniaive Sewage Disposal Works indicated the necessity for certain alterations in the method of applying tank liquor on the beds. These alterations are of a temporary nature and will only be necessary until the works are in full operation.

FERTILISERS AND FEEDING STUFFS ACT.

Ten Fertilisers were received, and in each case the composition was satisfactory. No Feeding Stuffs were submitted during the year.

MISCELLANEOUS.

Two deposits from Moniaive Sewage Disposal Works were suspected to contain considerable quantities of Soap, as the liquid then reaching the Works was largely derived from a local laundry. One of these was practically free from Fatty Matter. On a dry basis 23 per cent. of the Organic Matter of the other sample consisted of Soap and Decomposed Fat. It appeared that at least two-thirds of this had been derived from soap.

Two portions of Powder scraped from stones in the Crawick Water, 1 sample of Mud taken from the Wanlock, 1 of Stones, and one of Sand collected in the same area were examined, with particular reference to the presence of Lead. These are considered beside River Waters, page 10[illegible].

Bleaching Powder intended for chlorinating the water supply at Ecclefechan was examined for strength and for freedom from deleterious compounds prior to being used.

Work done for the Public Health Department is summarised as follows :—

Table No. 8.

PUBLIC HEALTH DEPARTMENT.

Milk (Grade A.T.T. and Certified)	171	
(Sundry others)	36	
(Partial)	2	
		209
Water (1) Potable.		
(a) Special Water District Supplies		63
(b) Others.		
Excellent	5	
Good	39	
Unsatisfactory	29	
		73
(c) Partial Examination only, *e.g.*, Lead, Copper, S.M., etc. (7 S.D.)		21
(2) River		40
Sewage and Sewage Effluent		44
Miscellaneous		8
Fertilisers		10
		468

KIRKCUDBRIGHT COUNTY COUNCIL.

Of 15 samples of Water 4 were regarded as unsuitable for dietetic use, and 4 others of doubtful purity in the absence of a satisfactory bacteriological examination. One sample was examined for Lead, as a probable cause of illness, but with entirely negative results. Water from the River Dee at Tongland below the Silk Factory showed no evidence of pollution. It absorbed less than ·05 part of Dissolved Oxygen per 100,000, coming within the category "very clean."

A sample of wrapped Cheese was examined for Metallic poisons. The cheese, of the rindless variety and wrapped in tinfoil, had been suggested as a probable cause of illness. Within the last year or so several Analysts have noted the presence of Tin and Antimony in small quantities in this type of cheese, and an adverse report was the subject of questions in the House of Commons. In this case, however, no trace either of Tin or Antimony was present, and neither the wrapping nor the Cheese showed any discolouration.

Under the Milk (Special Designations) Order (Scotland) the County Veterinary Inspector submitted 59 samples of Milk. For comparative purposes these have been considered in conjunction with similar samples taken in Dumfriesshire. It appears from the composition of these samples that producers in the Stewartry, like those in Dumfries, have no great difficulty in complying with the 3·5 per cent. Butter Fat requirements of the Department of Health.

WIGTOWNSHIRE COUNTY COUNCIL.

The County Medical Officer and County Sanitary Inspector submitted 18 samples of Water. Four were returned as suitable for dietetic use, 10 as definitely unsuitable, and 2 were viewed with considerable suspicion; 2 others were submitted to a restricted examination only.

The number of Waters containing Lead or Copper is considerably less. Only one contained Lead (·06 part per 100,000), and another gave presumptive evidence of Lead or Copper, but satisfactory confirmation was not obtained. The presence of ·08 part per 100,000 of Iron was noted in another. A cold water supply from Newton-Stewart, was free from Copper, while the hot supply contained ·112 part Copper per 100,000. This water was slightly acid and was peaty.

Of 26 waters received from Wigtownshire one contained Lead, one Copper, and another gave a doubtful reaction. This experience is contrary to that of last year, when out of 37 waters no less than 5 contained Lead and 4 Copper. The cause of the solvent action of these waters appears to be Acid, and these waters are generally peaty.

The Chief Constable submitted a sample of Dip taken from a sheep dipping bath. Dipping must be done with a Dip approved by the Ministry of Agriculture and Fisheries. Generally sheep dips are usually of one or other of the following types:—(1) Lime and Sulphur, (2) Tar Dips (Carbolic Acid and Soft Soap), (3) Tobacco or Nicotine Dips, and (4) Arsenical Dips.

In this case an Arsenical Dip had been used, as the sample submitted contained Arsenical Compounds equivalent to Arsenious Oxide ·027 per cent. It gave no evidence of the presence of material amounts of "Tar Acids" (*e.g.*, Carbolic Acid), Lime, or Sulphur.

The approval of the Ministry is based on a Dip being used at a certain dilution, and according to Form No. 716 T.A. of the Ministry an arsenical dipping bath should contain not less than ·20 per cent. of total arsenic (as Arsenious Oxide), which shall include not less than ·13 per cent. of Soluble Arsenic. This Dip was, therefore, not more than one-fifth or thereby of the appropriate concentration. In the proceedings which followed the defendant was fined for "failing to dip efficiently or cause to be dipped efficiently 29 sheep," and on three associated charges.

FOOD AND DRUGS ACT.

Samples are received from Dumfriesshire, Kirkcudbrightshire and Wigtownshire.

Particulars of the number and nature of these samples are shown in Appendix 2.

Eleven samples (3·3 per cent.) were certified as not genuine. Particulars of these are given in Table No. 9.

Table No. 9.

ADULTERATED SAMPLES.

DUMFRIES.	*Milk.*		
Fat	2·73%	2·07%	3·75%
N.F.S.	8·95%	8·77%	8·11%
T.S.	11·68%	10·84%	11·86%
Ash	·76%	·76%	·70%
Deficient in Fat	9%	31%	...
Deficient in N.F.S. (equiv. to Water)	...	...	1%

KIRKCUDBRIGHT.	*Milk.*	*Certified Milk.*
Fat	3·01%	
N.F.S.	8·56%	
T.S.	11·57%	
Deficient in Fat	...	14%

KIRKCUDBRIGHT.

Cream of Tartar.

Moisture	·66%	·12 [illegible]
Insol. Sand, etc.	·04%	...
Phosphate of Lime	·12%	...
Sod. Bicarb.	...	...
Calcium Sulphate...	4·40%	4·91%
Potassium Hydrogen Tartarate... ...	94·78%	94·67%
Arsenic	Nil.	[illegible]
Lead	...	5 p.p.m.

WIGTOWN. *Cream of Tartar.*

Sod. Bicarb.	[illegible]
Calcium Sulphate	[illegible]
Potassium Hydrogen Tartarate	[illegible]
Arsenic	[illegible]

KIRKCUDBRIGHT. *Ginger.*

Ash	[illegible]
Insoluble	[illegible]
Soluble	[illegible]
Silica	[illegible]
Sand and Grit	[illegible]
Cold Water Extract	[illegible]

DUMFRIES. *Magnesia.*

Loss on Ignition	[illegible]	1·92 [illegible]
Arsenic	Nil.	[illegible] p.p.m.
Oxide of Iron	...	[illegible]
Lime (C_aO)	...	1·08 [illegible]
Magnesia (M_gO)	...	57·8[illegible]

Seidlitz Powder (Double Strength).

White Paper—3·58 gms. Tartaric Acid. [illegible] Arsenic ¼ p.p.m.
Blue Paper—Sod. Bicarb. 2·4 gms.
Sod. Pot. Tartrate—[illegible] gms.

The percentage of adulterated samples (3·3) is considerably less than the Scottish average—1929, 8·9 per cent.; and 1928, 10·6 per cent.—but as the total number is relatively small no attempt has been made to distinguish between Official or Formal and Test or Informal Samples. Of the adulterated samples only 4 were Informal, the remaining 7 being Official Samples.

Of 89 samples of Milk only 3 failed to satisfy the requirements of the Sale of Milk Regulations. Two of these were deficient in Milk Fat, the other in Non-fatty Solids.

A sample of Certified Milk contained only 3·01 per cent. instead of 3·5 per cent. of Milk Fat as required by

Regulations. Particulars of these have already been shown in Table No. 9.

Some data relative to Milk samples are given with the information regarding Graded Milks.

Data are now available regarding the composition of Milk sold in Dumfries and Galloway over a period of nearly five years. In all 516 samples have been submitted, and particulars of these are given in the attached table.

Table No. 10.

M. % Fat.	Dumfries.	Galloway.	Total.
Under 2·8%	3·7	1·6	2·7
2·80–2·99	2·2	·8	1·6
3·00–3·19	11·0	6·1	8·7
3·20–3·49	19·1	14·7	17·1
3·50–3·99	43·0	49·2	45·9
4·00–4·49	17·7	18·8	18·2
4·50 and over	3·3	8·6	5·8

Of the Dumfriesshire samples 16 or 5·9 per cent. contained less than 3 per cent. of Milk Fat. In 9 instances the Milk was admittedly adulterated, and convictions were obtained in each case. Several of the other samples were associated with these cases. Similarly, in Galloway only 2·5 per cent., or 6 samples, failed to comply with the requirements of the Sale of Milk Regulations, and at least 4 of these were admittedly adulterated.

It is interesting to note that 64 per cent. of the milk samples taken in Dumfriesshire complied with the Milk Fat Requirements for Graded Milk, while no less than 83 per cent. contained 3·2 per cent. or more of Milk Fat. The corresponding figures for Galloway are 77 per cent. and 91 per cent. respectively—that is to say, of 516 samples of Milk taken in Dumfries and Galloway during the preceding five years no less than 361 samples, or 70 per cent., contained 3·5 per cent. or over of Milk Fat, *i.e.*, complying with the Milk Fat Requirements for Graded Milks, and 469 samples, or 87 per cent., contained 3·2 or over of Milk Fat. Table No. 11 shows the corresponding distribution of the Non-fatty Solids.

Table No. 11.

Non-Fatty Solids.	Dumfries.	Galloway.	Total.
Under 8	·7	2·5	1·5
8·00–8·29	2·6	2·0	2·3
8·30–8·49	2·9	2·9	[illegible]
8·50–8·69	28·7	29·1	[illegible]
8·70–8·89	33·4	29·5	[illegible]
8·90–9·09	23·9	21·7	[illegible]
9·10 and over	7·7	12·3	[illegible]
or alternatively.			
9·10 and over	7·7	12·3	[illegible]
8·90 and over	31·6	34·0	[illegible]
8·70 and over	65·0	63·5	[illegible]
8·50 and over	93·7	92·6	[illegible]
Under 8·50	6·2	7·4	6·7

I would reiterate the opinion previously expressed that the 3 per cent. presumptive standard of the Sale of Milk Regulations not only inflicts no hardship on local dairymen, but that it is in fact lenient. The 8·5 per cent. presumptive standard for Non-fatty Solids by no means errs on the side of severity, but at certain periods of the year, particularly May and June, slight deficiencies must be interpreted with care.

Two samples of Calcined Magnesia were certified adulterated on account of excessive loss of weight on heating. In one instance the loss was not serious. In the other it amounted to nearly one-ninth of the total weight (1¾ ounces per lb.). A probable explanation is that the samples had been in stock for some time with possible exposure to air. Like Lime, Magnesia will absorb water vapour and Carbon Dioxide from the air, thereby gaining in weight. On heating to dull redness the water and Carbon Dioxide so gained are drawn off. Such Magnesia, consequently, shows excessive loss on heating.

One Seidlitz Powder was submitted as Seidlitz Powder Double Strength. According to the British Pharmaceutical Codex, Double Strength Seidlitz Powder should contain twice the usual quantity of Sodium Potassium Tartrate. In Extra Strong Seidlitz Powder the quantity of Sodium Potassium Tartrate is increased by half. The amount of Sodium Potassium Tartrate (Rochelle Salt) corresponded approximately to that required for Extra

Strong, while there was a considerable and unnecessary excess of Tartaric Acid.

No less than three of 13 samples of Cream of Tartar consisted of an inferior grade, containing only 95 per cent. or thereby of Potassium Hydrogen Tartrate. The greater portion of the remainder consisted of Calcium Sulphate, though in one case about 1 per cent. of Sodium Bicarbonate was present - an accidental impurity; this sample was bought in a small village shop. Having regard to the extreme purity of Cream of Tartar (total impurity rarely reaches 1 per cent. and is frequently less than ·5 per cent.) usually supplied, the sale of this inferior grade, containing 5 per cent. of impurities, is clearly to the prejudice of the purchaser, and it appears that in at least one case the original offender was not the shopkeeper but the wholesale supplier.

MEDICINES.

Under the National Health Insurance Act the Department of Health adopted a scheme for the chemical examination of the quality of Drugs and Medicines supplied to insured persons. 24 Medicines dispensed according to test prescriptions were received from the Insurance Committees of Dumfriesshire, Kirkcudbrightshire, and Wigtownshire, and Dumfries Burgh. With two exceptions these consisted of liquid medicaments.

Only in one case did the volume of medicine supplied differ materially from that prescribed, and the difference, whilst large, could not be considered excessive. Usually the weight of drugs dispensed, as determined by analysis and by measurement, conformed within narrow limits to the amounts prescribed.

The exceptions were three medicines containing an excess of Sodium Bicarbonate to the extent of 12, 14 and 15 per cent. respectively, due largely to undissolved Bicarbonate in the portion submitted to me. Errors in dispensing seemed unlikely, as in each case the other components had been accurately dispensed. A medicine containing Tincture of Iodine was deficient in Iodine but satisfactory in other respects, pointing to the use of an old solution. One powder from a group of four showed a deficiency of 22 per cent., while the other three were also slightly deficient, indicating a certain laxness. Generally, the results indicate a high all-round standard of dispensing.

MISCELLANEOUS.

Other analyses are made for local authorities and for approved institutions and individuals in Dumfries and Galloway.

Early last year difficulties were encountered in operating the boilers at Lochmaben Sanatorium. [illegible] two Lancashire Boilers, working at 70-80 lbs. pressure per square inch, supply the steam necessary for the hot water and heating systems and for driving the laundry and power plant. Both boilers scaled badly and a considerable amount of corrosion was [illegible].

The scale was found on examination to consist of a Carbonate-Sulphate of Lime Scale with large amounts of Magnesia and Iron with a little Copper and [illegible] "peaty" matter. The water, which was of [illegible], contained some permanent hardness and Free Carbon Dioxide.

Treatment by means of Lime and Soda [illegible] proved an effective remedy, since corrosion, as noted by the appearance of the water in the gauge glasses, has ceased, while the composition of the water entering the boiler will reduce scaling at least of the working surfaces very considerably.

The Feed Water and Water from the Boiler are still being examined at regular intervals to ensure, firstly, that the chemical treatment of the incoming Feed Water is adequate, and secondly, that it is not excessive. In addition, as a check on the Feed Water, tests for Alkalinity are made regularly at three-hourly intervals by the boiler-house staff.

Other miscellaneous samples number 17 and they may be summarised thus :

Water	18
Fertilisers	12
Margarine	6
Butter	2
Milk	2
Cream	1
Fat	1
Cooked Meat	2
Ingesta	1
Flesh	1

Six samples of Margarine were taken at two Creameries in Wigtownshire. They were submitted on behalf of the Department of Health, and had reference to a Departmental investigation.

Two Cooked Meats suspected of causing illness were submitted to a careful examination for the presence of Metallic Irritant Poisons, *e.g.*, Arsenic, Antimony, Lead, Copper, Tin, and for Preservatives, but with entirely negative results.

A portion of Ingesta from a cow suspected to have died of Lead Poisoning yielded no evidence of the presence of Metallic or Irritant poison.

Three pieces of Flesh were submitted from a Police Authority. They evidently contained Rat Poison. Each piece had been slit and a white substance inserted, and it seemed doubtful whether or not this meat had been intended for rats—a dog seemed more likely. In all about 27 grs. of this substance was separated from the Flesh. It was free from Phosphorus, Hydrocyanic Acid, Strychnine, and similar substances, and from Arsenic. It contained, however, a considerable quantity of Barium Carbonate—a constituent of some rat poisons. The approximate composition was :—

Barium Carbonate	21%
Fat	45%
Vegetable Matter	34%

The exact nature of the Vegetable Powder was not established.

The amount of substance separated from the Meat contained between 5 and 6 grs. of Barium Carbonate and which, whilst representing a fatal dose for a rat and probably for a cat, would prove insufficient to kill a dog, unless perhaps a very small one.

The other samples do not call for comment.

A table showing the total number of analyses made during the year is given in Appendix 3, together with the corresponding figures for the previous year.

JOHN W. HAWLEY.

District.	Quarter.	[illegible]	[illegible]	[illegible]	[illegible]	Nitrate (NO_3)	[illegible] (N)	Saline Ammonia	Albuminoid Ammonia	Oxygen absorbed in 4 hours	Iron (Fe).	Pн Value.
Lower Annandale	1	8·05	4·64	3·41	1·30	·154	Nil.	·0014	·0136	·285	·007	8
Do.	2	8·00	5·04	2·96	1·10	·154	Present	·0022	·0110	·241	·002	8
Do.	3	8·56	5·44	3·12	1·00	·123	Nil.	·0020	·0196	·356	·006	7½
Do.	4	9·36	6·40	2·96	1·30	·092	Nil	·0010	·0176	·360	·013	8
Bankshill	1	20·64	20·24	·40	1·20	·154	Nil	·0006	·0020	·028	·003	8
Do.	2	20·32	17·76	2·56	1·40	·123	Nil.	·0010	·0031	·014	·002	8
Do.	3	19·76	17·76	2·00	1·30	·154	Nil.	·0012	·0014	·059	·003	8
Do.	4	18·16	15·44	2·72	1·30	·215	Nil.	·0016	·0038	·037	·026	7½
Blackshaw	1	8·24	6·88	1·36	1·70	1·27	Nil.	trace	·0014	Nil.	·003	6½
Do.	2	9·76	6·96	2·80	1·80	·887	Nil.	trace	·0026	Nil.	·003	6½
Do.	3	10·40	7·52	2·88	1·50	1·27	Nil.	·0010	·0034	·011	·015	6½
Do.	4	10·08	5·36	4·72	1·80	·818	Nil.	·0024	·0026	Nil.	·009	6½
Crawick	1	6·72	3·68	3·04	1·20	·092	Nil.	·0008	·0040	·056	·005	8
Do.	2	7·04	4·24	2·80	1·20	·031	Nil.	·0010	·0062	·103	·008	8
Do.	3	6·48	4·56	1·92	1·00	·092	Nil.	·0010	·0056	·137	·008	7½
Do.	4	6·88	4·32	2·56	1·20	·062	Nil.	·0010	·0056	·026	·004	8
Dumfries Landward	1	11·56	8·36	3·20	1·11	·617	Nil.	·0018	·0086	·218	·002	8
Do.	2	12·16	6·60	5·56	1·12	·216	Nil.	·0010	·0110	·229	·004	8
Do.	3	12·68	8·16	4·52	1·50	·031	Nil.	·0014	·0128	·235	·011	7½
Do.	4	16·00	6·56	9·44	1·40	·463	Nil.	·0026	·0160	·360	·007	8
Eaglesfield	1	17·36	13·84	3·52	1·40	·277	Nil.	·0010	·0032	·005	·002	8
Do.	2	15·68	13·28	2·40	1·20	·308	Nil.	·0006	·0016	·005	·003	8
Do.	3	16·00	14·24	1·76	1·20	·308	Nil.	trace	·0014	·027	·003	8
Do.	4	16·40	12·40	4·00	1·40	·277	Nil.	·0010	·0018	Nil.	·005	[illegible]
Ecclefechan	1	17·72	14·64	3·08	1·40	·524	Nil.	·0008	·0024	·002	·003	[illegible]
Do.	2	18·40	15·28	3·12	1·40	·617	Nil.	·0006	·0016	·007	·005	8
Do.	3	17·60	14·88	2·72	1·50	·771	Nil.	trace	·0018	·024	·003	8
Do.	4	[illegible]	14·56	3·84	[illegible]	·617	Nil.	·0026	·0028	Nil.	·004	8
Glencaple	1	[illegible]	[illegible]	[illegible]	2·70	1·03	Nil.	·0006	[illegible]	·030	·013	8
Do.	2	[illegible]	10·32	[illegible]	2·40	·709	Nil.	·0012	[illegible]	·060	·013	8
Do.	3	20·20	9·60	10·60	2·30	·247	Nil.	·0013	[illegible]	·127	·020	8
Do.	4	13·04	7·60	5·44	1·70	·771	Nil	·0018	·0032	·074	·005	8

District.	Quarter.	Total Solids.	Saline Residue.	Volatile Matter.	Chlorides (Cl).	Nitrates (N2O5).	Nitrites (N).	Saline Ammonia.	Albuminoid Ammonia.	Oxygen absorbed in 4 hours.	Iron (Fe).	PH Value.
Kirkconnel	1	18·64	13·28	5·36	1·20	·247	Nil.	·0006	·0028	·020	·002	8
Do.	2	21·12	17·92	3·20	1·30	·123	Nil.	·0010	·0052	·072	·006	8½
Do.	3	13·04	12·56	·48	1·20	·092	Nil.	·0020	·0034	·212	·004	8
Do.	1	14·24	10·96	3·28	1·40	·185	Faint	·0012	·0070	·142	·002	8
Do.	4	5·52	2·80	2·72	1·00	·062	Reaction.	·0014	·0064	·292	·004	8
Lockerbie Burgh	1	12·96	10·24	2·72	1·20	·215	Nil	·0024	·0060	·107	·005	8
Do.	3	[illegible]	8·88	1·80	1·10	·154	Nil.	·0016	·0100	·351	·010	8
Moniaive	1	7·04	5·04	2·00	1·10	·062	Nil.	·0014	·0040	·083	·008	8
Do.	2	8·16	4·80	3·36	1·30	·062	Nil.	·0016	·0050	·113	·005	8¼
Do.	3	[illegible]	[illegible]	4·40	·80	·062	Nil.	·0010	·0140	·468	·003	8
Do.	4	[illegible]	[illegible]	10·80	1·20	·092	Nil.	·0008	·0062	·191	·003	8
Netherwood, Kelton, and Craigs	1	[illegible]	11·56	[illegible]	1·50	·092	Nil.	·0010	·0052	·031	·004	8
Do.	2	13·60	12·00	1·60	1·60	·031	Nil.	·0010	·0080	·061	·003	8¼
Do.	3	18·70	12·30	6·40	1·60	·092	Nil.	·0014	·0062	·085	·015	8
Do.	4	11·08	8·80	2·28	1·60	·092	Nil.	·0012	·0042	·043	·008	8¼
Penpont	1	7·36	5·68	1·70	1·30	·123	Nil.	·0012	·0026	Nil.	·004	6¾
Do.	2	[illegible]	1·64	3·52	1·10	·062	Nil.	trace	[illegible]	Nil.	·004	6
Do.	3	[illegible]	[illegible]	3·04	1·60	[illegible]	Nil.	Nil.	·0066	·016	·002	7½
Do. ...	4	[illegible]	[illegible]	[illegible]	1·10	[illegible]	Nil.	·0008	·0014	Nil.	·011	6¾
Ruthwell and Raffles	1	[illegible]	6·40	[illegible]	[illegible]	[illegible]	Nil.	·0010	[illegible]	·075	·008	9¼
Do.	2	[illegible]	[illegible]	[illegible]	2·10	[illegible]	Nil.	·0016	[illegible]	[illegible]	[illegible]	8
Do.	3	[illegible]	[illegible]	[illegible]	1·80	·308	Nil.	[illegible]	[illegible]	·100	·018	8
Do.	4	[illegible]	[illegible]	[illegible]	1·60	·092	Nil.	[illegible]	[illegible]	·227	·005	8
Rowanburn	1	[illegible]	[illegible]	[illegible]	1·10	[illegible]	Nil.	·0010	·0038	·017	·006	6½
Do.	2	[illegible]	[illegible]	[illegible]	1·00	[illegible]	Nil.	[illegible]	·0028	·072	·012	7
Do.	3	[illegible]	[illegible]	[illegible]	1·10	[illegible]	Nil.	·0026	[illegible]	·098	·013	6¾
Do.	4	[illegible]	[illegible]	[illegible]	·80	[illegible]	[illegible]	·0012	[illegible]	Nil.	·008	6½
Thornhill ...	1	[illegible]	[illegible]	2·96	[illegible]	[illegible]	Nil.	·0010	[illegible]	·020	·007	8
Do.	2	[illegible]	[illegible]	[illegible]	1·60	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	·003	[illegible]
Do. ...	3	[illegible]	[illegible]	[illegible]	1·50	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8
Do.	4	[illegible]	[illegible]	[illegible]	1·30	·277	Nil	·0010	[illegible]	[illegible]	[illegible]	[illegible]

Appendix No. 2.

Table showing the number and nature of Samples received under the Food and Drugs Act.

Article.	Joint Committees of Dfs.	Kbt.	Wig.	Total	Adulterated.
Milk	45	26	18	89	4
Milk (Condensed) ...	...	...	2	2	...
Cream	...	5	...	5	...
Butter	37	6	9	52	..
Margarine	2	4	1	7	..
Cheese	4	...	2	6	...
Lard	17	1	2	20	..
Dripping	...	1	.	1	..
Tea	...	6	1	7	...
Coffee	6	2	3	11	...
Cocoa	2	3	1	6	...
Sugar	..	2	...	2	..
Jam	...	2	1	3	...
Mincemeat	...	...	1	1	..
Currants	...	...	1	1	...
Cinnamon	...	2	...	2	...
Ginger	...	4	...	4	1
[illegible]	1	5	3	9	...
[illegible]	1	..	...	1	..
Cream of Tartar	2	5	6	13	3
[illegible]	..	4	3	7	...
[illegible]	...	1	...	1	
[illegible] ...	4	...	...	4	
Cornflour	..	...	1	1	..
Arrowroot	1	..	...	1	...
Rice	4	...	..	4	...
Oatmeal . ..	2	..	..	2	.
[illegible]	..	...	2	2	.
[illegible]	..	...	1	1	
[illegible] .. .	..	2	1	3	
Sausages . .	...	2	3	5	
[illegible] .	..	...	1	1	..
[illegible] ...	..	...	1	1	.
[illegible] Soup ...	...	..	1	1	.
Swiss Roll...	...	...	1	1	.
Fruit Salad	...	...	1	1	.
Beer	...	...	4	4	
Spirit	...	8	9	17	...
Soda Water	4	...	...	4	...
Sweets	8	...	...	8	...
Tongue	...	...	1	1	..
Rennet	...	...	1	1	..
Glycerine	3	...	...	3	..
Calcined Magnesia ...	2	...	...	2	2
Cascara Sagrada	...	...	1	1	...
Gregory Powder	3	...	...	3	...
Seidlitz Powder	2	...	...	2	1
Comp. Liquorice Powder	3	...	...	3	...
Almond Oil	2	...	...	2	...
Olive Oil	2	...	...	2	...
Camphorated Oil ...	3	...	...	3	..
Linseed Meal	2	...	...	2	.

Appendix 3

	County Council of			County Council Joint Committee of			Insurance Committee of				Dfs. and Gall. Joint Sana. Board.	Other Auth. and Private.	Total.
	Dfs.	Kbt.	Wig.	Dfs.	Kbt.	Wig.	Dfs.Co.	Dfs.	Kbt.	Wig.			
... ...	197	17	18	...	...	...	...	...	...	...	101	19	352 (278)
and Sewage	44	...	...	...	...	...	...	...	...	...	...	...	44 (31)
nd Drugs	...	...	...	162	91	83	...	...	...	...	...	...	336 (122)
D. Order) ...	209	59	...	...	...	...	...	...	...	...	...	...	268 (186)
and Feeding	10	...	1	...	...	...	...	...	...	...	...	...	11 (6)
under N.H.	...	...	...	...	...	...	6	1	12	2	...	...	21 (16)
laneous	8	1	1	...	...	...	...	...	...	...	1	28	12 (30)
... ...	468	77	20	162	91	83	6	1	12	2	10[illegible]	17	107[illegible] ([illegible]68)
	(401)	(51)	([illegible])	(160)	(15[illegible])	(85)	(1[illegible])	(6)	[illegible]	(6)	[illegible]	(65)	